



# TSUKUBA STANDARDs

for Graduate Schools and Programs

TSUKUBA  
STANDARDs

## Tsukuba Standards for Graduate Schools and Programs

# Co-creating New Knowledge and Unique Human Resources at TSUKUBA, a Hub of Knowledge

Based on our founding philosophy, we clarify our educational framework, including educational goals and methods for achieving them in our Graduate Schools and Programs and measures for improvement of educational content, and widely publicize it to society as the educational declaration of the University, which aims to guarantee and continuously improve the quality of degrees.

### Concept

The University of Tsukuba aims to establish free exchange and close relationships in both basic and applied sciences with educational and research organizations and academic communities in Japan and overseas. While developing these relationships, we intend to pursue education and research to cultivate men and women with creative intelligence and rich human qualities.

The University of Tsukuba endeavors to contribute to the progress of science and culture. Formerly, Japanese universities tended to remain cloistered in their own narrow, specialized fields, creating polarization, stagnation in education and research and alienation from their communities.

The University of Tsukuba has decided to function as a university which is open to all within and outside of Japan. Toward this end, the university has made it its goal to develop an organization better suiting the functions and administration with a new concept of education and research highly international in character, rich in diversity and flexibility and capable of dealing sensitively with the changes occurring in contemporary society.

To realize this, it has vested in its staff and administrative authorities the powers necessary to carry out these responsibilities.

# IMAGINE THE FUTURE.

The University of Tsukuba was established as a "university with a new vision" and functions as an open university. The identity of the university is based on these tenets as well as the initial intent behind the reforms aiming towards interdisciplinary studies and internationalization. Looking at the current trends, we can say with confidence that the foresight of such thinking was ahead of its time. As is well known, interdisciplinary studies, liberal arts education, industry-university cooperation, international exchange and acceptance of international students are all trends that are in step with the times. We take pride in our forward-looking foresight.

The university therefore chose to be an "advanced university" rather than "traditional university" or "prestigious university." Although we are proud of our history as the Tokyo Higher School of Teachers and Tokyo University of Education, we became committed to the ideals of "reform" and "new challenges" when the university relocated to Tsukuba. "Tsukuba", for us is not a mere geographical location, but a symbol for the ideals we uphold. We will continue to reinvent and break new ground, for this is the essence of an "open university." For us, being "number one" means that we must be open, continue reinventing ourselves, and be a future-oriented university and a hub of Tsukuba City that looks toward the world and our future. As a true university that includes departments from medicine through physical education and arts, we aim to facilitate comprehensive human understanding as well as nurture human talent.

Reaffirming our role as a leading university, we wish to continuously pass on the mantle of new traditions from one generation to the next.

## What are Tsukuba Standards?

The Tsukuba Standards are the educational declarations of the University. There are two types of standards, one for Undergraduate Schools and Colleges (announced in March 2008) and the other for graduate Schools and Programs (announced in June 2011). These standards clarify the aims of the University of Tsukuba in each course and how to achieve those aims, and announce to the general public the quality of education guaranteed by the University. As a tool to not only maintain quality, but also to constantly improve and continuously elevate it, the Tsukuba Standards play an important role within the university.

## Definition of “degree program”

The degree program is an educational program that specifies the abilities to be achieved according to the level of the degree (bachelor, master, doctoral, etc.) and the academic field, and is systematically designed to enable students to acquire these abilities. In the traditional system where faculty members were fixed in educational organizations such as departments, and because programs were organized as the sum of classes offered by individual faculty members, the circumstances of the faculty members tended to take precedence over the demands of society and the needs of students. In contrast to this, a degree program is designed to provide educational content from the student's perspective, with faculty members gathered across the boundaries of internal and external organizations to create a program that is appropriate for a degree, with the degree positioned as proof of the student's internationally compatible abilities. By having an education system centered on degree programs, it becomes easier for students and society to see the educational objectives, content, and outcomes of the university.

## Tsukuba Standards and a degree program

Since its inception, the University has implemented bachelor program education under a system that separates the education of students from the research of faculty members by establishing “Schools and Colleges” that differ from traditional departments. With this educational system, it is possible to deploy teachers from throughout the university according to educational needs without being closed within a single organization. It can be said that this is an educational system that embodies the idea of a degree program. In the 2011 academic year, we carried out organizational reforms to establish a new faculty member organization (Faculty), and in the 2020 academic year, we reorganized and restructured the graduate school and established a university-wide educational management system and framework, making a full transition to an educational system centered on degree programs. In the Tsukuba Standards, it clearly states the “Diploma Policy” and “Curriculum Policy” for each degree, as well as the measures to guarantee the quality of these policies for all educational organizations. These are consistent measures based on the founding philosophy of the University. Our entire faculty and staff are determined to push forward with educational reforms in order to establish our degree program system as an education system with international compatibility and collaborative capabilities and to pursue further improvements in the quality of education.

NAGATA Kyosuke President of the University of Tsukuba

# Educational Goals of The University of Tsukuba Graduate School

## Educational Goals of Doctoral Programs

- To cultivate researchers who will carry on and further academic studies, and researchers who will integrate different fields and open up new, cutting-edge fields

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- To develop highly-skilled professionals who contribute to society with deep expertise, outstanding originality, and flexibility

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- To nurture university faculty members with well-developed competencies in the areas of education, research, and organizational management

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## Educational Goals of Master's Programs

- To develop highly-skilled professionals who contribute to society by having both a global perspective and specialized practical skills

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## Educational Goals of Professional Degree Programs

- To develop highly-skilled professionals with the extraordinary abilities and profound knowledge necessary for careers that require a high level of expertise

The image of human resources to be developed through graduate education at the University of Tsukuba

- Human resources who are capable of exercising global leadership based on a keen international sense
- Human resources who are capable of creating knowledge that contributes to the future of human society with a rich culture and sense of ethics
- Human resources who pioneer professional careers based on matured intellect, emotion, and intellect combined with logical thinking and innovative creativity

Co-creating New Knowledge and Unique Human Resources at TSUKUBA, a Hub of Knowledge (Figure 1)



Figure 1 Co-creating New Knowledge and Unique Human Resources

## Clear educational goals and high quality degree programs

### ■ Degree Program system with six Degree Programs in three Graduate Schools

In the 2020 academic year, the University's Graduate School was reorganized from 85 Programs in 8 Graduate Schools to 6 Degree Programs in 3 Graduate Schools, and we made a full transition to a degree program system. In the new organization, the traditional walls between majors were broken down, and faculty from a wide range of disciplines worked together on degree programs. In other words, the six Degree Programs are equivalent to the so-called majors, and all the faculty members are full-time faculty members in those schools. As a result, one faculty member can be responsible for more than one program within a Degree Program, and a system of cross-disciplinary and collaborative guidance is now possible (Figure 2). We have also clearly separated the Graduate Schools and Degree Programs from the system to which the faculty members belong. The programs established under the Graduate Schools and Degree Programs have established human resource development objectives based on social demands at the degree level (master's, doctoral) and in the discipline (research, professional, specialist) or field, and have clearly stated what skills should be acquired, and have systematically designed educational programs to acquire these abilities.

In addition to this, the "School of Integrative and Global Majors" has been established to implement and manage degree programs operated under university-wide cooperation.

### ■ Clarification of three policies and the establishment of competencies

With regard to all degrees awarded by the University, we have clarified the three policies of Diploma Policy, Curriculum Policy, and Admission Policy, as well as the knowledge and abilities ("competencies") that students should possess at the time of being awarded with a degree. Based on these policies, each educational organization and degree program organizes and implements its educational program. By clearly indicating the competencies that are suitable for degrees and assessing the degree of achievement of those competencies, the quality of degrees can be guaranteed, and the academic work results of graduate education at the University can be visible to society.

Competencies are divided into "Generic Competences," and "Specific Competences." Generic Competences are defined as general knowledge and abilities that support active roles in society and are common to all Master's Programs and Doctoral Degree Programs (Table 1). Specific Competences, as advanced knowledge and abilities in the major field, correspond to the human resource development objectives of each level of academic schools and research schools, and degree program, and are systematically organized around the three core competencies of "research abilities," "specialized knowledge," and "ethical view." By establishing competencies based on the characteristics and uniqueness of each degree program upon a common foundation at each level of the university, academic schools and research schools, the system enables students to cultivate not only deep specialization but also basic knowledge in related fields, a broad perspective, and with a comprehensive view.

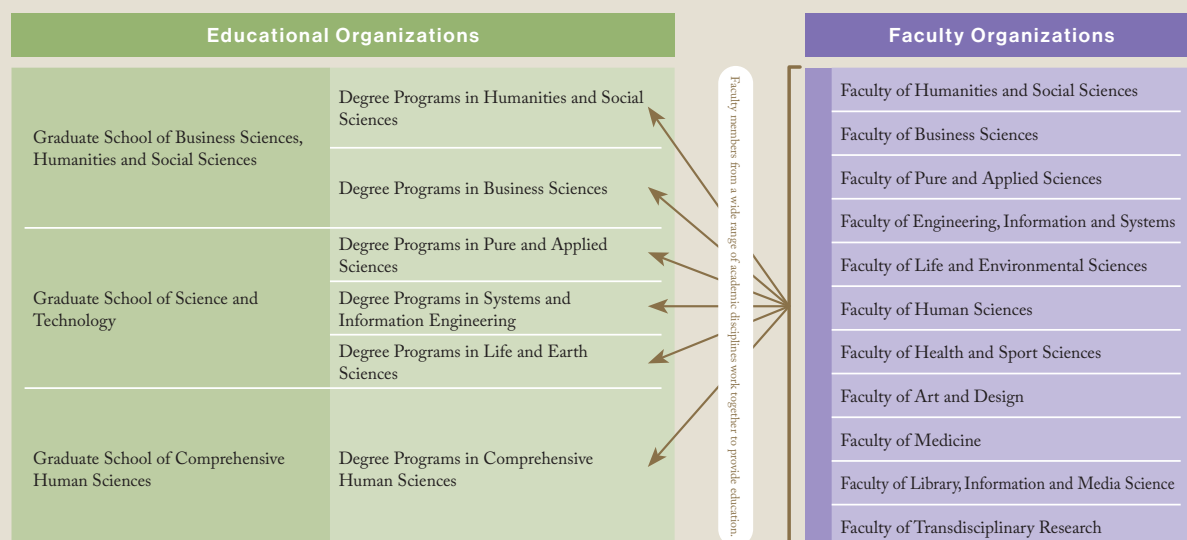


Figure 2 Collaborative teaching by faculty members from a wide range of fields

## Systematized educational curriculum organization

In addition to a comprehensive intellectual foundation gained through the acquisition of highly specialized knowledge and interdisciplinary knowledge, the University defines “creative wisdom education” as an educational system to nurture highly-skilled intellectuals with well-balanced general knowledge and skills including ethics, humanity, logicity, internationality, communication skills, a rich physical and mental foundation, and management, planning and coordination skills. Based on this philosophy of creative wisdom education, each educational organization and degree program systematically structures and implements educational programs that enable students to acquire Generic Competences and Specific Competences in a well-balanced manner, as specified in the Diploma Policy. For this reason, we offer not only courses related to the major field of study of each degree program, but also Graduate General Education Courses organized across the entire university, Inter-disciplinary Foundation Courses organized by each graduate school, and Degree Programs’ Common Courses. Graduate General Education Courses mainly correspond to Generic Competences, and we have established six courses to cultivate ethics, information transmission and communication skills, internationality, career management skills, a broad intellectual foundation, and a rich physical and mental foundation in a balanced manner. Inter-disciplinary Foundation Courses correspond to the Specific Competences of Graduate schools, and allow students to acquire basic knowledge in various specialized fields adjacent to their own. Through taking

	Generic Competences
Master's Students	1. Knowledge application competence: Ability of contribute to society with advanced knowledge
	2. Management competence: Ability to appropriately address challenges from broader standpoints
	3. Communication competence: Ability of communication in expert knowledge with accuracy and clearness
	4. Teamwork competence: Ability to work with the team and actively contribute to the achievement of goals
	5. Internationality competence: Willingness to contribute to the international society
Doctoral Students	1. Knowledge creation competence: Ability to create new knowledge to be able to contribute to future society
	2. Management Competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective
	3. Communication competence: Ability to express the true nature of academic findings positively and clearly
	4. Leadership competence: Ability to accomplish objectives under one's leadership
	5. Internationality competence: High level of awareness and motivation to be internationally active and contribute to international society

Table 1 Generic Competences

Graduate General Education Courses, Inter-disciplinary Foundation Courses, Degree Programs’ Common Courses, and specialized courses in their respective fields of study, students will be able to acquire the ability to think logically from a holistic perspective, as well as acquire expertise in a wide range of fields beyond the confines of a single discipline.

## Nurturing research and field skills to meet the demands of society

In today’s society, which faces many complex issues, there is a strong demand to produce human resources with advanced and practical problem finding and solving skills, underpinned by deep specialized knowledge and research capabilities. In light of these circumstances, in addition to research skills appropriate for a master’s or doctoral degree, the University has positioned degrees awarded by degree programs that place particular emphasis on the cultivation of “field skills” that meet the actual, tangible challenges of society as “Professional Research Degree” (Figure 3).

This is a degree system uniquely established by the University in order to proactively and accurately respond to specific issues in society. There is no difference in the status of the degrees (master’s or doctoral) awarded under the law.

There are 16 degree programs that award a “Professional Research Degree,” which are the current Master’s/Doctoral Program in Business Administration, Master’s Program in Service Engineering, and the Master’s Program in Mountain Studies.

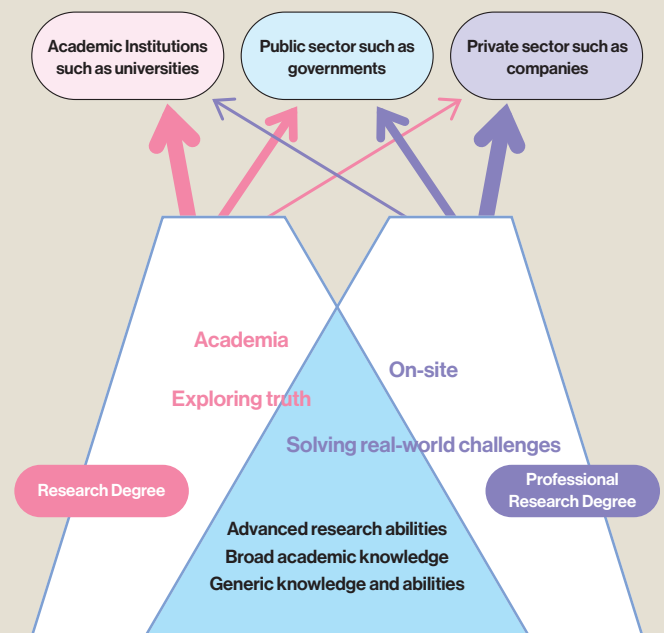


Figure 3 Professional Research Degree and Research Degree



# Developing human resources to become global leaders

## From Tsukuba to TSUKUBA

Since the establishment of the University, many international students and foreign faculty members have gathered here, and the students and faculty members who learn from each other beyond the boundaries of nationality and language have co-created TSUKUBA, a hub of knowledge that is not bound by the organization known as the “University of Tsukuba” or the region known as “Tsukuba City.” In addition, as a comprehensive university with distinctive programs in physical education, Art, and medicine, the University provides holistic support for international students and foreign faculty members, including sports, the Art, and physical and mental health, thereby promoting the creation of a community where everyone can work together with peace of mind.

There are many foreigners residing in Tsukuba City and Tsukuba Science City. As a core institution, the university also functions as a hub to promote the internationalization of Tsukuba Science City (Table 2).

## Internationalization in Everyday Life

One of the roles that the University must play in the 21st century is to develop human resources who will become global leaders. In order to realize this goal, the University has established 13 overseas bases in 12 countries and regions, and has concluded more than 300 exchange agreements (Fig. 4), and has achieved remarkable results in admitting excellent international students, sending current students abroad, and academic exchange among faculty members.

Through initiatives such as the Project for Establishing Core Universities for Internationalization (Global 30: 2009–2013 academic year) and the Global Human Resource Development Project (GGJ: 2012–2016 academic year), the University has been promoting the “internationalization in everyday life” of the campus. Top Global University Project (SGU: 2014–2023 academic year) is promoting Campus-in-Campus and other programs aiming to implement education and research that transcends national borders and institutional boundaries and actively utilizes resources from around the world.

In addition, office of International Exchange Support, Student Support Center, has been established as an on-campus organization that provides a one-stop service to promote “internationalization in everyday life” on campus and the sending of students abroad for “the world is a place of learning.”

## Developing global leaders

In order to develop human resources worthy of becoming international leaders, the University does not limit the place of learning to its campus, but adopts the motto of “the world is a place of learning” and, as a unique form of support, provides scholarships, classes, extracurricular activities, and various other university-wide initiatives (Table 3).

There are 12,090 foreigners from 147 countries living in Tsukuba City (as of January 2023)

The University has about 3,800 dormitory rooms, where about 900 of the 2,500 international students live.

Table 2 Status of Foreign Residents in Tsukuba City and Tsukuba Science City

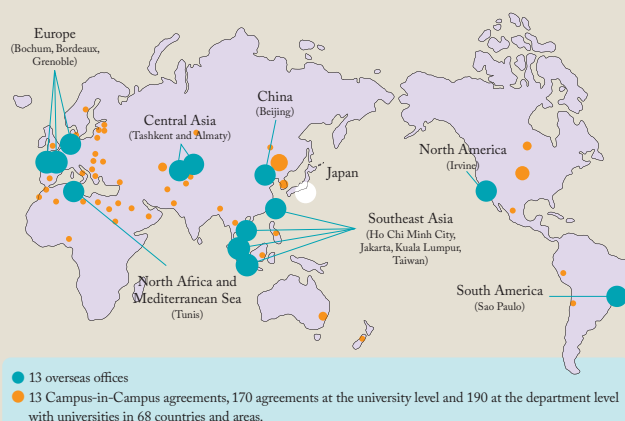


Figure 4 Overseas Offices and Partner Organizations (as of December 2024)

Financial support (travel expenses support, accommodation expenses support, participation expenses support, etc.)
Graduate General Education Courses : International Research Project, International Internship
Tsukuba Scholarship : Support for international students
Study Abroad Support Programs : Partner University Exchange Students Support Program, Campus in Campus (CiC) Support Program, Overseas Study Tour Support Program (MUSHA-SHUGYO), Overseas Academic Conference Participation Support Program, Overseas Language Training and Academic Activity Support Program
Courses, Educational Programs, etc.
Graduate General Education Courses: Advanced Discussion Course by Japan Project-Industry Council JAPIC Advanced Discussion Course
Ph.D. Program in Human Biology Ph.D. Program in Empowerment Informatics
Ph.D. Program in Humanities (Doctoral Program for World-leading Innovative & Smart Education) (Adopted by WISE Program)
Transnational European and East Asian Culture and History, TEACH
The Nippon Foundation Central Asia–Japan Human Resource Development Project, NipCA Project (Granted by the Nippon Foundation)
ASEAN International Mobility for Students (AIMS) Program Tsukuba Trans-Pacific Program
Program in Economic and Public Policy (A master's program in English for young leaders in developing countries with the support and cooperation of the World Bank, etc.)
University of Tsukuba Global+ Leadership Education Program A leadership education program open to the entire university to acquire knowledge of global scale issues (global), perspectives from emerging countries (local), and advanced English and local language skills.
Special Program in Japanese and Central Eurasian Studies (A master's degree program in English established with the support of The Nippon Foundation Central Asia–Japan Human Resource Development Project, with the objective of developing human resources who can contribute to the achievement of the Sustainable Development Goals in the Central Asian region and to the resolution of issues faced by local communities)
Japan-Expert (bachelor degree) Program Bachelor's Program in Global Issues Bachelor's Program in Interdisciplinary Engineering (New educational programs under the Top Global University Project)
Providing a forum
A forum for exchange between Japanese and international students : Student Commons, Global Chat Program (G-Chat/Tsuku-chat/Language Exchange (GOTCHAT) etc.
A forum for exchange between citizens and international students City Chat Café etc.

Table 3 Initiatives for developing global leaders

## Realization of university-wide quality management for teaching and learning

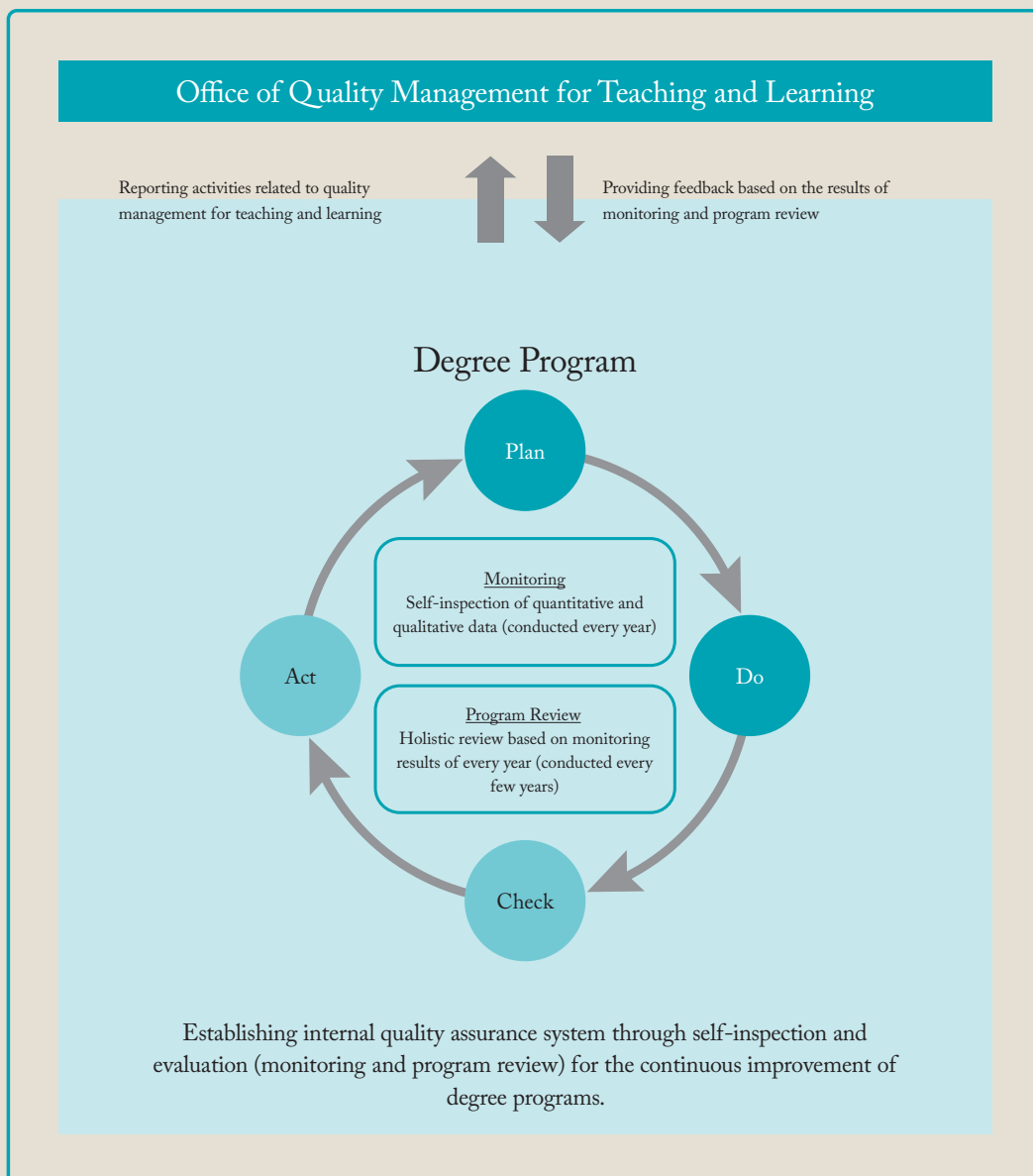
### Promotion of the PDCA cycle through university-wide academic management

The University establishes the Office of Quality Management for Teaching and Learning and realizes university-wide quality management for continuous assurance and improvement of remodeled degree program's quality.

The Office of Quality Management for Teaching and Learning will undertake monitoring (self-inspection conducted every year) and program review (holistic review conducted every few years, scheduled for the seven-year cycle accreditation audit) of degree programs as well as quality review of degree program proposals,

Promotion of systematic faculty development activities, research in higher education for advancement of internal quality assurance.

Figure 5 Image of quality assurance model comprised of monitoring and program review



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## School of Integrative and Global Majors

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# Graduate School of Business Sciences, Humanities and Social Sciences

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## Degree Programs in Humanities and Social Sciences

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Master's Program in Humanities

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Subprogram in Philosophy

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Subprogram in History and Anthropology

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Subprogram in Literature

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Subprogram in Linguistics

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Subprogram in Modern Culture Studies

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Subprogram in English Language Education

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Master's Program in International Public Policy

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Master's Program in International and Advanced Japanese Studies

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Doctoral Program in Humanities

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Subprogram in Philosophy

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Subprogram in History and Anthropology

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Subprogram in Literature

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Subprogram in Linguistics

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Subprogram in Modern Culture Studies

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Subprogram in English Language Education

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Doctoral Program in International Public Policy

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Doctoral Program in International and Advanced Japanese Studies

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## Degree Programs in Business Sciences

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Master's Program in Law

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Master's Program in Business Administration

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Doctoral Program in Law

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Doctoral Program in Business Administration

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## Law School Program

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## MBA Program in International Business

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## Educational Purpose of Graduate School of Business Sciences, Humanities and Social Sciences

The Graduate School of Business Sciences, Humanities and Social Sciences cultivates such researchers, university faculty members and other highly specialized professionals who can create new knowledge and embody it through the research of human values and of the way how individuals and society should be, in a comprehensive manner embracing both the time and special scales by means of multifunctional and advanced education and research in business sciences, humanities, and social sciences.

## Competences specified by the Graduate School of Business Sciences, Humanities and Social Sciences

Master's Program	1. Research ability	Basic knowledge and ability to set research tasks and carry out a research plan in the areas of business sciences, humanities, and social sciences
	2. Specialized knowledge	Advanced specialized knowledge and command of the areas of business sciences, humanities, and social sciences
	3. Ethical view	Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of business sciences, humanities, and social sciences
Doctoral Program	1. Research ability	Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of business sciences, humanities, and social sciences
	2. Specialized knowledge	Leading-edge and advanced specialized knowledge and command of the areas of business sciences, humanities, and social sciences
	3. Ethical view	Ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of business sciences, humanities and social sciences and deep ethical knowledge about the specific area of expertise
Doctoral Program	<ul style="list-style-type: none"> <li>• Ability to have deep specialized knowledge about the management and legal work of businesses and organizations and think from various perspectives</li> <li>• Ability to identify problems on one's own from social and business scenes and solve them after clarification</li> <li>• Ability to communicate by merging knowledge and experience about theory and practice based on academic research and giving one's views</li> <li>• Ability to create new knowledge about management and legal work and put it into practice in society and business</li> </ul>	

## Degree Programs in Humanities and Social Sciences

### Educational purpose

The Degree Programs in Humanities and Social Sciences seek to cultivate human resources who have an outstanding ability in the fundamental research of humanities and social sciences as to the study and analysis of the affairs pertaining to individuals or society and the individual-to-society relationship and also who can contribute to hand down the human knowledge in response to academic progression or changes in social requirements, as well as such researchers, educators and professionals with high specialty and working-level ability who daringly challenge global scale issues and social issues brought up by the progression of globalization and possess both ingenuity and flexibility to envision the desirable ways how humans should exist and how the relationship between individuals and society should be.

	Competences specified by the Degree Programs	Evaluation perspectives
Master's Program	1. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of humanities and social sciences	① If the ability to set research tasks in the areas of humanities and social sciences was acquired ② If the ability to carry out a research plan in the areas of humanities and social sciences was acquired
	2. Specialized knowledge: Advanced specialized knowledge and command of the areas of humanities and social sciences	① If advanced specialized knowledge in the areas of humanities and social sciences was acquired ② If a command of specialized knowledge in the areas of humanities and social sciences was acquired
	3. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability in the areas of humanities and social sciences	① If ethical view necessary in the areas of humanities and social sciences was acquired ② If ethical knowledge necessary in the areas of humanities and social sciences was acquired
Doctoral Program	1. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of humanities and social sciences	① If the ability to set leading-edge research tasks in the areas of humanities and social sciences was acquired ② If the ability to carry out a research plan independently in the areas of humanities and social sciences was acquired
	2. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of humanities and social sciences	① If leading-edge and advanced specialized knowledge in the areas of humanities and social sciences was acquired ② If a comprehensive command of specialized knowledge in the areas of humanities and social sciences was acquired
	3. Ethical view: Ethical view and ethical knowledge appropriate for researchers in the areas of humanities and social sciences and deep ethical knowledge about the specific area of expertise	① If ethical view and ethical knowledge appropriate for researchers in the areas of humanities and social sciences was acquired ② If deep ethical knowledge about the specific area of expertise was acquired

## Degree Programs in Business Sciences

### Educational purpose

The Degree Programs in Business Sciences, which are designed principally for adult members of society, seek to cultivate highly specialized professionals who are deeply scholarly and excellent in the abilities required of the highly specialized professionals looked for in the society and business, to be able to contribute to the sustainable growth of society by researching the background of various issues that today's world or organizations face and by formulating and implementing effective solutions.

	Competences specified by the Degree Programs	Evaluation perspectives
Master's Program	1. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the area of business sciences	If the research ability to repair various problems in modern society from a new perspective by the systematization of knowledge and experience gained from work is acquired
	2. Specialized knowledge: Advanced specialized knowledge and command of the area of business sciences	If specialized knowledge and command to repair various problems in modern society from a new perspective by the systematization of knowledge and experience gained from work are acquired
	3. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of business sciences, humanities, and social sciences	If ethical knowledge appropriate for researchers or highly specialized professionals in the area of business sciences is gained and understood as ethical view
Doctoral Program	1. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the area of business sciences	If the research ability to independently and creatively make the recognition, analysis, development of solutions, etc. of new types of problems facing companies and society is acquired
	2. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the area of business sciences	If the ability to develop analysis and solutions of problems facing companies and society using leading-edge and advanced specialized knowledge is acquired
	3. Ethical view: Ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of business sciences and deep ethical knowledge about the specific area of expertise	If advanced ethical knowledge appropriate for researchers or highly specialized professionals in the area of business sciences is gained and understood as ethical view



## Master's Program in Humanities

Name of the degree to be conferred	Master of Arts in Humanities
Educational purpose	The Master's Program in Humanities helps students gain excellent specialized knowledge in various areas of humanities such as philosophy, ethics, religion, history, anthropology, literature, linguistics, culture studies and English language education in order to adapt to changes in the circumstances of humanities research and education and to social changes that arise with globalization. The Program also cultivates those who set their sights to pursue a doctoral program to become researchers or university faculty members competent both in research and education who can contribute to problem solving in a joint effort with other persons in different areas of expertise to identify and solve new global problems.
Vision of human resources development	Students should possess not only specialized knowledge in the areas of humanities but also the knowledge in associated areas, as well as the high research ability to work on research tasks by interdisciplinary approach. In addition, they should be able to pass along such research findings to the society from a wide perspective to solve modern problems.

### Diploma Policy

The degree of Master of Arts in Humanities is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of humanities	① If the ability to set research tasks in the areas of humanities was acquired ② If the ability to carry out a research plan in the areas of humanities was acquired
7. Specialized knowledge: Advanced specialized knowledge and command of the areas of humanities	① If advanced specialized knowledge in the areas of humanities was acquired ② If a command of specialized knowledge in the areas of humanities was acquired
8. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability in the areas of humanities	① If ethical view necessary in the areas of humanities was acquired ② If ethical knowledge necessary in the areas of humanities was acquired



9. Thinking ability: Ability to think affairs logically and draw conclusions based on the knowledge in one's own area of expertise	If the ability to think affairs logically and draw conclusions based on the knowledge in one's own area of expertise was acquired
10. Comprehensive: Ability to place one's own findings into associated areas and apply and practice them	If the ability to place one's own findings into associated areas and apply and practice them was acquired

#### Dissertation evaluation criteria

1. The research theme must be appropriately set and clear in significance and positioning.
2. Associated preceding studies must be covered and critically appraised.
3. The research method must be clearly presented.
4. The arguments must be appropriately composed, empirical and logical.
5. New academic findings must be included.
6. The appropriate format as a degree thesis must be provided in adherence to research ethics.

Master's theses must be reviewed publicly by a review board which is set up with one chief reviewer and two or more sub-reviewers.

#### Curriculum Policy

The Program is designed to provide students with education and research guidance to develop a breadth of basic skills in humanities and social sciences, and to have wide perspectives in humanities, society and business as well as the versatile knowledge and ability that support the students to be active in diverse social settings, along with the research ability, specialized knowledge and ethics in humanities that involve the nine areas of philosophy, ethics, religious studies, history, anthropology, literature, linguistics, culture studies and English language education.

**Curriculum organization policy** In order to cultivate the basic skills and wide perspectives as well as versatile knowledge and ability in associated areas with the student's major at the core, two credits must be earned as required elective subjects from Graduate General Education Courses, Inter-disciplinary Foundation Courses and Degree Programs' Common Courses.

In addition, the two required credits of "Joint Seminar for Master's Thesis" and "Introduction to Research Methods or Academic Writing and Research Ethics" in Degree Programs' Common Courses must be earned. The research supervision takes a multiple-instruction scheme (participated by faculty members of other Programs if required) to develop a research ability that exerts multifaceted perspectives.

The concrete subjects to be taken and the assignment of sub-supervisory faculty members will be decided based on the individual student's research plan, carrier plan, etc.

- The ability to put advanced knowledge to use in society is acquired with Graduate General Education Courses, Joint Seminar for Master's Thesis, Introduction to Research Methods or Academic Writing and Research Ethics, etc.
- The ability to appropriately address challenges from every angle is acquired with Graduate General Education Courses, Internship for Humanities and Social Sciences (1)(2), etc.
- The ability to express expert knowledge accurately and clearly is acquired with Graduate General Education Courses, Joint Seminar for Master's Thesis, etc.
- The ability to cooperate and actively contribute to the achievement of goals as a team is acquired with Graduate General Education Courses, Internship for Humanities and Social Sciences (1)(2), etc.
- The awareness to contribute to international society is acquired with Graduate General Education Courses, Grant Writing for Humanities and Social Sciences, etc.
- The basic knowledge and ability to set research tasks and carry out a research plan in the areas of humanities and social sciences and the areas of humanities are acquired with Inter-disciplinary Foundation Courses, Joint Seminar for Master's Thesis, Introduction to Research Methods or Academic Writing and Research Ethics, specialized subjects (seminar subjects), master's thesis creation, special interest group presentations, etc.

	<ul style="list-style-type: none"> <li>• The advanced specialized knowledge and command of the areas of humanities and social sciences and the areas of humanities are acquired with Inter-disciplinary Foundation Courses, Joint Seminar for Master's Thesis, specialized foundation subjects, specialized subjects (lecture subjects, seminar subjects), master's thesis creation, special interest group presentations, etc.</li> <li>• The ethical view and ethical knowledge appropriate for persons with basic research ability in the areas of humanities and social sciences and the areas of humanities are acquired with Graduate General Education Courses, (life, environment and research ethics subjects), Inter-disciplinary Foundation Courses, Introduction to Research Methods or Academic Writing and Research Ethics, specialized subjects (seminar subjects), research supervision, etc.</li> <li>• The ability to think affairs logically and draw conclusions based on the knowledge in one's own area of expertise is acquired with specialized subjects (seminar subjects), master's thesis creation, special interest group presentations, etc.</li> <li>• The ability to place one's own findings into associated areas and apply and practice them is acquired with Foundation Subjects for Major (seminar subjects), other Programs' subjects, research supervision, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students learn and take research supervision in accordance with a "learning plan" and a system of supervision, which are set up at the enrollment and the beginning of the year based on the research theme of each student.</li> <li>• In the first year, students learn the research ethics and basic research techniques through learning "Introduction to Research Methods" to acquire "Competence of knowledge application (generic competence)" and the specific competences of "research ability" and "ethical view" .</li> </ul> <p>Early on at the time of enrollment, students acquire "Competence of knowledge application" , "Management competence" , "Communication competence" , "Teamwork competence" and "Competence in Internationality" through other Degree Programs' Common Courses, Inter-disciplinary Foundation Courses, Graduate General Education Courses and other foundation subjects.</p> <ul style="list-style-type: none"> <li>• Students principally in the first year take Foundation Subjects for Major to learn the basic knowledge of each one's areas of specialty to acquire the specific competence of "specialized knowledge" , etc.</li> <li>• Students principally in the second year take Major Subjects (lecture subjects, seminar subjects) to learn the specialized knowledge necessary for research and the command of it to acquire "Competence of knowledge application" and the specific competences of "research ability" , "specialized knowledge" , "thinking ability" , etc. Around Major Subjects (seminar subjects) and research supervision, students also acquire "Management competence" , "Communication competence" , "Teamwork competence" , etc. and the specific competences of "ethical view" and "overall ability" .</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• To evaluate competence acquisition, the supervisory faculty member checks the acquisition status at the end of the student's first year, and based on the result, learning supervision is given for the second year. When a master's thesis is submitted, the satisfaction of all of the following competences is evaluated. Acquisition criteria are separately presented to students. <ul style="list-style-type: none"> <li>Competence of knowledge application</li> <li>Management competence</li> <li>Communication competence</li> <li>Teamwork competence</li> <li>Competence in Internationality</li> <li>Research ability</li> <li>Specialized knowledge</li> <li>Ethical view</li> <li>Thinking ability</li> <li>Overall ability</li> </ul> </li> <li>• Master's theses must be reviewed publicly by a review board which is set up with one chief reviewer and two or more sub-reviewers.</li> </ul>

## Admission Policy

**Desired students** We seek candidates who have the great interest to the areas of humanities, the enthusiasm to sincerely work on research tasks, and the basic knowledge, linguistic skill, logical thinking ability and discussion ability necessary to conduct research and who have also the motivation to pass along research findings to the society.

**Selection policy** To select out enrollments, diverse candidates are sought through the general entrance exam, recommendation entrance exam or other enrollment selection methods. The opportunity of entrance exam is offered multiple times in the same year with the split of the number of persons admitted.

- In the general entrance exam, candidates are comprehensively evaluated with the written exam of a specialized subject and an oral exam. For the specialized subject, candidates select one 科目, which is associated to the areas of humanities, at the time of the application for enrollment; the selectable subjects are philosophy/thought, history/anthropology, literature, linguistics, modern culture studies, English language education, etc., and the exam, which includes some test items to solve on a specialized literature written in a foreign language (one language), evaluates the basic knowledge necessary for the research of the areas of humanities, the ability of logical thinking, the specialized knowledge of the area to be researched and the linguistic skill necessary for research.

The oral exam, which has regard to the bachelor's thesis (or an equivalent paper) and the submitted documents such as a research plan, evaluates the candidate's basic research ability, the interest, enthusiasm and aptitude for research, the motivation to contribute to the society through research, and the specialized knowledge of the area to be researched, as well as the presentation ability, the communication ability, etc. The discussion ability for the candidate's own area of expertise is evaluated with the submitted bachelor's thesis (or an equivalent paper).

- In the recommendation entrance exam, candidates are required to write a paper as the written exam and take an oral exam to make an overall evaluation.

This exam is applicable to candidates who are recommended by the faculty members who supervised them in a degree program, etc. and know their abilities, personalities and qualities well enough to assure that they have already acquired the basic knowledge and logical thinking ability necessary for the research in the areas of humanities.

For this reason, candidates are not required to take the written exam of a specialized subject but read specialized literature written in a foreign language (one language) and write a paper to discuss on it as the written exam to evaluate if the candidate has the sufficient logical thinking ability, discussion ability and linguistic skill to carry out the writing of a master's thesis.

The oral exam, which has regard to a written recommendation and a research plan, confirms the basic knowledge of one's own area of expertise, the ability to carry out research, and the specialized knowledge of the area to be researched, and evaluates the interest, enthusiasm and aptitude for research and the motivation to contribute to the society through research, as well as the presentation ability, the communication ability, etc.

## Master's Program in International Public Policy

Name of the degree to be conferred	Master of Arts in International Public Policy
Educational purpose	<p>The Master's Program in International Public Policy offers education and research supervision that are cross-disciplinary across the advanced expertise in the areas involving international public policy, including international relations, area studies, sociology, politics, economics, anthropology and public policy studies. The Program thereby cultivates those who set their sights to pursue a doctoral program to become university faculty members, researchers, etc. who base themselves on specialized knowledge to exert the research ability to flexibly adapt to globalization, modern international problems, which have become so complex, individual communities' problems, and social and cultural problems, and also the practical ability of problem solving that can lead these problems to public policy scenes.</p>
Vision of human resources development	<p>He or she should possess the problem-solving ability and practical ability from the viewpoint that links problems to public policy as to the political-economic and social policy problems inside and outside Japan and also the problems related to individual communities and international relationships. These abilities are based on the advanced research ability founded on the logical thinking ability and analytical ability for theory and demonstration by taking advantage of the specialized knowledge of the areas of international public policy.</p> <p>As for the public business learning models designed for working adult members of society, in addition to the above abilities, he or she should gain the specialized knowledge of business administration, the ability to logically think in depth, and the ability to logically organize the content of thought.</p>
Diploma Policy	
<p>The degree of Master of Arts in International Public Policy is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.</p>	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	<p>① Can you apply knowledge gained through research and other activities in society?</p> <p>② Can you identify new problems, even in other fields of expertise, based on broad knowledge?</p>
2. Management competence: Ability to appropriately address challenges from broad standpoints	<p>① Can you take on major tasks with systematic planning?</p> <p>② Can you understand and solve problems from multiple perspectives?</p>
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	<p>① Are you capable of efficient communication for research purposes?</p> <p>② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?</p>
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	<p>① Do you have experience cooperatively and actively working on challenges as part of a team?</p> <p>② Have you helped promote projects and activities other than your own research?</p>
5. Internationality competence: Willingness to contribute to international society	<p>① Are you aware of making contributions to international society and getting involved in international activities?</p> <p>② Have you obtained the linguistic skills necessary for international information collection and action?</p>
6. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of international public policy	<p>① If capable of approaching to tasks using the expertise in the areas of international public policy to manage one's own research process</p> <p>② If capable of internally and externally transmitting research findings concerning international public policy, and based on it, capable of solving problems and making implementation</p>

7. Specialized knowledge: Advanced specialized knowledge and command of the areas of international public policy	① If analytical ability supported by the specialized knowledge of international public policy and logical thinking was gained ② If flexible thinking ability that works with multiple disciplines of international public policy was gained
8. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability in the areas of international public policy	If capable of managing one's own research process based on high ethics

#### Dissertation evaluation criteria

1. Specific research tasks must be set with a clear description of the significance and need of the research.
2. The research methods and analyses used must be appropriate to the research tasks.
3. The preceding researches in the same area must be sufficiently considered.
4. The entire thesis must be logically developed with consistency.
5. The thesis must be systematically structured and unified as an academic paper.
6. Bibliography and references must be clearly shown in accordance with appropriate expressions and notational conventions.
7. Appropriate consideration must be paid for the handling of personal information and ethics.  
A thesis for degree grant, if approved to meet all of the above criteria, passes with an oral exam included in the judgment.

#### 【Review board members】

A review board must be formed by one chief reviewer and two or more sub-reviewers who are the research supervisory faculty members or course teaching faculty members.

Half or more of the reviewing faculty members in the board must be faculty members of the Master's Program in International Public Policy but, if required, faculty members who do not belong to the Master's Program in International Public Policy (including faculty members, etc. of other universities' graduate schools or research institutes, etc.) can be added as sub-reviewers.

#### Curriculum Policy

The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in humanities and social sciences, and to have the big picture in mind in humanities, society and business as well as the generic knowledge and ability that support the students to be active in diverse social scenes, along with the research ability, specialized knowledge and ethical view for the research on international public policy that is cross-disciplinary across the areas of international relations, area studies, sociology, politics, economics, anthropology and public policy studies.

Curriculum organization policy	<p>In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, one credit from Graduate General Education Courses, another one credit from Inter-disciplinary Foundation Courses, and two credits from "Joint Seminar for Master's Thesis" and "Introduction to Research Methods or Academic Writing and Research Ethics" in Degree Programs' Common Courses must be earned as required subjects, and other Degree Programs' Common Courses are encouraged to be taken.</p> <p>The research supervision takes a multiple-instruction scheme (participated by faculty members of other Programs if required) to develop a research ability that exerts multifaceted perspectives.</p> <p>The concrete subjects to be taken and the assignment of sub-supervisory faculty members will be decided based on the individual student's research plan, carrier plan, etc.</p> <ul style="list-style-type: none"> <li>• The ability to put advanced knowledge to use in society is acquired with Graduate General Education Courses, Joint Seminar for Master's Thesis, Introduction to Research Methods or Academic Writing and Research Ethics, etc.</li> <li>• The ability to appropriately address challenges from every angle is acquired with Graduate General Education Courses, Internship for Humanities and Social Sciences (1)(2), Foundation Subjects for Major, etc.</li> </ul>
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	<ul style="list-style-type: none"> <li>• The ability to express expert knowledge accurately and clearly is acquired with Graduate General Education Courses, Joint Seminar for Master's Thesis, Major Subjects (seminar subjects), etc.</li> <li>• The ability to cooperate and actively contribute to the achievement of goals as a team is acquired with Graduate General Education Courses, Internship for Humanities and Social Sciences (1)(2), Major Subjects (seminar subjects), etc.</li> <li>• The awareness to contribute to international society is acquired with Graduate General Education Courses, Grant Writing for Humanities and Social Sciences, Foundation Subjects for Major, etc.</li> <li>• The basic knowledge and ability to set research tasks and carry out a research plan in the areas of humanities and social sciences and the areas of international public policy are acquired with Inter-disciplinary Foundation Courses, Joint Seminar for Master's Thesis, Introduction to Research Methods or Academic Writing and Research Ethics, Foundation Subjects for Major, Major Subjects (seminar subjects), master's thesis creation, special interest group presentations, etc.</li> <li>• The advanced specialized knowledge and command of the areas of humanities and social sciences and the areas of international public policy are acquired with Inter-disciplinary Foundation Courses, Joint Seminar for Master's Thesis, Major Subjects, writing of master's thesis, special interest group presentations, etc.</li> <li>• The ethical view and ethical knowledge appropriate for persons with basic research ability in the areas of humanities and social sciences and the areas of international public policy are acquired with Graduate General Education Courses (life, environment and research ethics subjects), Inter-disciplinary Foundation Courses, Introduction to Research Methods or Academic Writing and Research Ethics, Research Workshop on International Public Policy, Major Subjects (seminar subjects), research supervision, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Early on immediately after enrollment, students take foundation subjects including Graduate General Education Courses and Inter-disciplinary Foundation Courses to acquire the generic competences such as the Competence of knowledge application, Management competence and Communication ability as well as ethics.</li> <li>• Students take Foundation Subjects for Major principally in their first year to master the basic methods and interdisciplinary perspectives in the areas of international public policy and acquire the Competence in Internationality and basic research ability.</li> <li>• Major Subjects includes lecture and seminar subjects. Lecture subjects allow mainly to gain advanced specialized knowledge, whereas seminar subjects, through discussions and other exercises, allow to enhance the research ability for the project that each student works on and also develop the problem-solving ability, Communication ability and Group skill. Students organize the subjects to take throughout the first and second years in the areas of international public policy, around those that each one thinks are especially important.</li> <li>• In the second year, the support for the research process is offered toward the writing of a master's thesis while including the training on ethics through the thesis supervision by the supervisory faculty members of the "Research Workshop on International Public Policy" .</li> </ul>
Evaluation of learning outcomes	<p>The achievements of knowledge and ability specified as the diploma policy are evaluated as follows.</p> <ul style="list-style-type: none"> <li>• At the end of the first year, the supervisory faculty members and the curriculum board make an interim evaluation of competence achievement by checking the learning completion status and the number of credits earned. Based on the result, students are supervised for the learning in the second year.</li> <li>• At the submission of a master's thesis, the supervisory faculty members and the curriculum board make the final evaluation of competence achievement by checking whether the subjects covering the competences have been taken.</li> <li>• The supervisory faculty members and sub-supervisory faculty members evaluate the acquisition of the competences through the qualification of the outcomes of "Research Workshop on International Public Policy" , the mid-term presentation of master's thesis during the second year, and the oral exam for the review of master's thesis.</li> </ul>

- Whether the degree thesis is based on the above competences and whether its outcomes show the adequacy to grant the master's degree (International Public Policy) are evaluated through the thesis review by multiple reviewers including supervisory faculty members and sub-supervisory faculty members as well as the public presentation.

## Admission Policy

### Desired students

We seek candidates who, through the wiring of bachelor's thesis, other outcomes of learning or their social experiences, have gained the ability and specialized knowledge to allow to continuously carry out the logical and practical research that enables the coexistence of individuals amid the complex modern society and international problems, as well as the enthusiasm for such research and the flexibility that can be applied to actual work of expertise by actively identifying challenges out of their interest, not only absorbing advanced knowledge.

### Selection policy

To select out enrollments, diverse candidates are sought through the general entrance exam, recommendation entrance exam, the special selection for those who wish to complete the Program by taking only English-taught courses or other enrollment selection methods. The opportunity of entrance exam is offered multiple times in the same year with the split of the number of persons admitted.

- In the general entrance exam, candidates are comprehensively evaluated with the written exams of specialized subject and foreign language and an oral exam.

For the specialized subject, candidates select one subject, which is associated to the areas of international public policy, at the time of the application for enrollment; the selectable subjects are international relations, social development, anthropology, sociology, politics, area studies, economics, etc., and the exam evaluates the continuous research ability and specialized knowledge sufficient to write a master's thesis and the flexibility that can be applied to actual work of expertise. The written exam on a foreign language evaluates the command of the language indispensable for research and actual work.

The oral exam, which has regard to a research plan, etc., evaluates the candidate's enthusiasm and motivation for research, the specialized knowledge of the area to be researched, the flexibility and other qualities to be applied to actual work of expertise and the possibility of achieving the research plan, as well as the presentation ability, the communication ability, etc.

- In the recommendation entrance exam, candidates are required to write a paper as the written exam and take an oral exam to make an overall evaluation.

This exam is applicable to candidates who are recommended by the faculty members who instructed them in a degree program, etc. and know their abilities, personalities and qualities well enough to assure that they have already acquired the specialized knowledge, continuous research ability and foreign language command necessary for the research in the areas of international public policy.

For this reason, candidates are not required to take the written exam of a specialized subject and a foreign language but write a paper to evaluate the specialized knowledge of the area to be researched and the flexibility to be applied to actual work of expertise.

The oral exam, which has regard to a written recommendation and a research plan, evaluates the possibility of achieving the research plan, the enthusiasm and motivation for research, the specialized knowledge of the area to be researched, and the qualities the candidate has for research, as well as the presentation ability, the communication ability, etc.

- Special selection is applicable to those who wish to complete the Program by taking only English-taught courses, such as younger civil officials and other jobholders in developing countries and emerging powers.

In special selection, document screening and an oral exam are given as overall evaluation.

Document screening examines the research plan, recommendation and so on, and evaluates the possibility of achieving the research plan, the enthusiasm and motivation for research, etc. (The oral exam, which has regard to the documents, evaluates the continuous research ability, the specialized knowledge of the area to be researched, the enthusiasm and motivation for research, the command of English, the possibility of achieving the research plan, as well as the presentation ability, the communication ability, etc.)

## Master's Program in International and Advanced Japanese Studies

Name of the degree to be conferred	Master of Arts in International and Advanced Japanese Studies
Educational purpose	<p>Japan highly grew as the first country to get industrialized with utmost speed among the non-western society and as the first country that ended the baby boom among the world's major countries after World War II, whereas, after the 90's, the country turned out to take the challenge of having the most serious case of aging population with declining birthrate among the developed countries.</p> <p>The academic knowledge based on such experience of Japan is meaningful to search for the way how not only Japan but also the world should be in the future.</p> <p>The Master's Program in International and Advanced Japanese Studies is designed to cultivate researchers (basic level) who can squarely face, based on Japan's such standing position, the various problems that Japan and the world are facing in today's globalized world. Also, the Program cultivates researchers (basic level) who possess the research and education abilities concerning Japanese culture and society in humanities, social sciences and Japanese language education to transmit the findings of such research widely inside Japan and also overseas from an international, interdisciplinary and comparative point of view.</p> <p>Moreover, the Program seeks to cultivate internationally and scholarly human resources active in the world, specializing in the areas of humanities, social sciences and Japanese language education.</p>
Vision of human resources development	<p>He or she should possess a broader specialized knowledge and spectrum of points of view in order to shed light on the contemporary Japan's characteristics from a global perspective, and should have the basic skills for it. In addition, through learning in a wide area of associated fields, he or she should be potentially capable of advancing to a doctoral program with research activities in view.</p>

### Diploma Policy

The degree of Master of Arts in International and Advanced Japanese Studies is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?



5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of international and advanced Japanese studies	① If the ability to set research tasks in the areas of international and advanced Japanese studies was acquired ② If the ability to carry out a research plan in the areas of international and advanced Japanese studies was acquired
7. Specialized knowledge: Advanced specialized knowledge and command of the areas of international and advanced Japanese studies	① If advanced specialized knowledge necessary in the areas of international and advanced Japanese studies was acquired ② If advanced specialized command necessary in the areas of international and advanced Japanese studies was acquired
8. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability in the areas of international and advanced Japanese studies	① If ethical view necessary in the areas of international and advanced Japanese studies was acquired ② If ethical knowledge necessary in the areas of international and advanced Japanese studies was acquired

#### Dissertation evaluation criteria

##### (Review system)

(1) The review exclusive board members (exclusive reviewer) must include a total of three or reviewers, which are one chief reviewer (research supervision) and two sub-reviewers (research supervisory or course teaching faculty members) appointed from the members of the faculty member meeting for the applicable Degree Programs; the one chief reviewer and half or more of the sub-reviewers are appointed from the members of the Faculty Meeting for Master's Program in International and Advanced Japanese Studies of the Degree Programs in Humanities and Social Sciences.

(2) At least one of the exclusive reviewers belonging to the Master's Program in International and Advanced Japanese Studies of the Degree Programs in Humanities and Social Sciences must be a doctor's degree holder.

(3) At least one of the exclusive reviewers belonging to the Master's Program in International and Advanced Japanese Studies of the Degree Programs in Humanities and Social Sciences must be a research supervisory faculty member as a member of Faculty Meeting for the Master's Program in International and Advanced Japanese Studies over a year or more continuously after the review exclusive board breaks up.

(4) Faculty members of Tsukuba who do not teach in any subject of Graduate School's Degree Programs can be added as sub-reviewers of the review exclusive board if approved as essential to the review of the degree thesis for the Master's Program in International and Advanced Japanese Studies.

(5) Faculty members or such who belong to other Graduate Schools, Degree Programs or such of Tsukuba or faculty members of other universities' graduate schools or other research institutes or such can be added as sub-reviewers of the review exclusive board if approved as essential to the review exclusive board for the degree thesis for the Master's Program in International and Advanced Japanese Studies.

##### (Evaluation items)

Degree theses must be reviewed based on the following items.

- ① The tasks are appropriately set up.
- ② The line of reasoning is clear and consistent.
- ③ Appropriate analyses are developed using accurate terminology.
- ④ The findings of preceding researches are sufficiently grasped.
- ⑤ Literature and materials are approximately used.
- ⑥ The style of presentation and composition are appropriate.
- ⑦ Due academic contributions are identified.

##### (Evaluation criteria)

A thesis for degree grant meeting all of the above evaluation items passes with the final exam included in the judgment.

## Curriculum Policy

The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in humanities and social sciences, and to have the big picture in mind not only in humanities, society but also business scene as well as the generic knowledge and ability that support the students to be active in diverse social scenes, along with the research ability, specialized knowledge and ethics in international and advanced Japanese studies that involve the three areas of humanities, social sciences and Japanese language education.

### Curriculum organization policy

In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's primarily interested research at the core, one credit from Graduate General Education Courses or Inter-disciplinary Foundation Courses and 2 credits from "Joint Seminar for Master's Thesis" and "Introduction to Research Methods or Academic Writing and Research Ethics" in Degree Programs' Common Courses must be earned as required subjects.

The research supervision takes a multiple-instruction scheme (participated by faculty members of other Programs if required) to develop a research ability that exerts multifaceted perspectives. The concrete subjects to be taken and the assignment of sub-supervisory faculty members will be decided based on the individual student's research planning, carrier planning, etc.

- The ability to put advanced knowledge to use in society (1. Competence of knowledge application) is acquired with Graduate General Education Courses, Joint Seminar for Master's Thesis, Introduction to Research Methods or Academic Writing and Research Ethics, Project Seminar 1A, 1B, 2A, 2B, 2C and 2D, master's thesis creation, academic conference presentations, etc.
- The ability to appropriately address challenges from every angle (2. Management competence) is acquired with Graduate General Education Courses, Internship for Humanities and Social Sciences (1)(2), Project Seminar 1A, 1B, 2A, 2B, 2C and 2D, self-check on level of attainment, participation in external contests, etc.
- The ability to express expert knowledge accurately and clearly (3. Communication competence) is acquired with Graduate General Education Courses, Joint Seminar for Master's Thesis, Japanese Language for IAJS, English Language for IAJS, academic conference presentations, etc.
- The ability to cooperate and actively contribute to the achievement of goals as a team (4. Teamwork competence) is acquired with Graduate General Education Courses, Internship for Humanities and Social Sciences (1)(2), Japan's Politics and Civil Society 1 and 2, teaching assistant experience, contest participation as a team, questions at academic conferences, questions at seminars, etc.
- The awareness to contribute to international society (5. Competence in Internationality) is acquired with Graduate General Education Courses, Grant Writing for Humanities and Social Sciences, Japanese Language for IAJS, English Language for IAJS, overseas activity experience, interaction with international students, TOEIC, international conference presentations, joint research with foreigners, etc.
- The basic knowledge and ability to set research tasks and carry out a research plan in the areas of humanities and social sciences and the areas of international and advanced Japanese studies (6. Research ability) are acquired with Inter-disciplinary Foundation Courses, Joint Seminar for Master's Thesis, Introduction to Research Methods or Academic Writing and Research Ethics, Project Seminar 1A, 1B, 2A, 2B, 2C and 2D, Major Subjects (seminar subjects), master's thesis creation, special interest group presentations, etc.
- The advanced specialized knowledge and command of the areas of humanities and social sciences and the areas of international and advanced Japanese studies (7. Specialized knowledge) are acquired with Inter-disciplinary Foundation Courses, Joint Seminar for Master's Thesis, Foundation Subjects for Major, Major Subjects (lecture subjects, seminar subjects), master's thesis creation, special interest group presentations, etc.

	<ul style="list-style-type: none"> <li>• The ethical view and ethical knowledge appropriate for persons with basic research ability in the areas of humanities and social sciences and the areas of international and advanced Japanese studies (8. Ethical view) are acquired with Graduate General Education Courses (life, environment and research ethics subjects), Inter-disciplinary Foundation Courses, Introduction to Research Methods or Academic Writing and Research Ethics, Major Subjects (seminar subjects), research supervision, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• General Foundation Subjects: In “Introduction to Research Methods” or “Academic Writing and Research Ethics”, students learn the fundamentals of research and information ethics and the research qualities in the areas of international and advanced Japanese studies. Students also take “Graduate General Education Courses” and “Inter-disciplinary Foundation Courses” to acquire wide perspectives useful to research.</li> <li>• Foundation Subjects for Major: In “Japanese Language for IAJ” and “English Language for IAJ”, students acquire the knowledge and skill necessary for the research using Japanese (non-native) or English. In other Foundation Subjects for Major, students systematically learn the fundamentals of interdisciplinary disciplines of humanities, social sciences and Japanese language education and develop wide perspectives and problem awareness not bound to specific disciplines by means of multidisciplinary research that aim to meld humanities and social sciences. In the seminar subjects, graduate school students learn debates, presentations, analyses and so on founded on the basic knowledge of specialty in each subject, and put them into practice.</li> <li>• Major Subjects: In “Project Seminar”, graduate school students make presentations on the conception, research processes and findings of research projects and debate on them with faculty members and other graduate school students. “Research Program Development”, students advanced to complete the Program earlier take intensive seminars.</li> </ul> <p>In other Major Subjects, students systematically learn the interdisciplinary disciplines of humanities, social sciences and Japanese language education and develop wider perspectives and deeper problem awareness not bound to specific disciplines by means of multidisciplinary research that aim to meld humanities and social sciences.</p> <p>In the seminar subjects, graduate students learn debates, presentations, analyses and so on founded on the specialized knowledge in each subject, and put them into practice.</p> <ul style="list-style-type: none"> <li>• In accordance with the acquisition criteria set up for each of the eight competences, students learn while pressing on toward meeting the criteria 60% or more by the end of the first year, 80% or more by the end of the first half of the second year, and 100% by the end of the second year.</li> </ul> <p>Acquisition criteria are separately presented to students.</p> <ol style="list-style-type: none"> <li>1. Competence of knowledge application</li> <li>2. Management competence</li> <li>3. Communication competence</li> <li>4. Teamwork competence</li> <li>5. Competence in Internationality</li> <li>6. Research ability</li> <li>7. Specialized knowledge</li> <li>8. Ethical view</li> </ol>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• In “Project Seminar”, students critically appraise the research findings that each student has made so far through question-and-answer sessions based on the students’ presentations on the conception and interim outcomes of master’s theses to help them clarify his/her respective positions in the path toward the completion of the master’s thesis as well as the direction of the research from now on. In other Foundation Subjects for Major and Major Subjects, students learn to critically appraise their existing knowledge and ideas through the classes taken and the seminars during which students debate with faculty members and other participating students.</li> </ul>

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• Competence achievement is evaluated as follows.

- ① The supervisory faculty member makes an evaluation in “Project Seminar” 1A or 1B at the end of the first year and supervises the acquisition during the first half of the second year.
- ② The supervisory faculty member makes an evaluation in “Project Seminar” 2A or 2B at the end of the first half of the second year and supervises the acquisition during the second half of the second year.
- ③ The supervisory faculty member makes an evaluation in “Project Seminar” 2C or 2D at the end of the second year, and if any of the competences 1 to 8 is not met, the student fails.

## Admission Policy

**Desired students** We seek candidates who have motivation to research Japan’s culture and society and Japanese language education from an internationally comparative point of view and to apply the findings of such research to address various problems of Japan, East Asia and other countries under their initiative.

In the Master’s Program, we widely seek students or adult members of society who have motivation to squarely face these problems as researchers (basic level) or other professionals.

**Selection policy** Diverse candidates are sought through the general entrance exam, special entrance exam for adults or other enrollment selection methods. The opportunity of entrance exam is offered multiple times in the same year with the split of the number of persons admitted.

• In the general entrance exam, candidates are comprehensively evaluated with the written exams of specialized subject and foreign language and an oral exam.

For the specialized subject, candidates, at the time of application, select one subject, which is associated to the areas of international and advanced Japanese studies; the selectable subjects are “politics”, “economics”, “literature / culture / philosophy”, “law / society / media / information”, “linguistics” and “Japanese language education”, and the candidates answer in Japanese or English (only Japanese for “Japanese language education”), so that the exam can evaluate the ability to carry out the Master's Program in international and advanced Japanese studies as well as the specialized knowledge of the area to be researched.

The written exam on a foreign language evaluates the command of the language necessary for international and advanced Japanese studies.

The oral exam, which has regard to a research plan, etc., evaluates learning outcomes and the thinking ability, the candidate’s enthusiasm and motivation for research, and the specialized knowledge of the area to be researched, as well as the presentation ability and the communication ability.

• In the recommendation entrance exam, candidates are required to write an essay as the written exam and take an oral exam.

The recommendation entrance exam is applicable to students who have been recommended by some faculty members as a supervisor in the undergraduate program. Applicants must be recommended for having already acquired the academic expertise, research ability, and foreign language skills necessary for international and advanced Japanese studies. Also, the recommender must be familiar with the applicant's academic potential, personality, and advantage in order to recommend him/her.

As applicable candidates have already earned or will earn a bachelor's degree, writing an essay takes the place of the exam of a specialized subject to evaluate the knowledge and understanding of the specialized area, the logical thinking ability and other specialized abilities to carry out high levels of international and advanced Japanese studies in the master’s program.

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The oral exam, which has regard to a research plan, a recommendation sheet, etc., evaluates the motivation to squarely face international and advanced Japanese studies, the research plan, the reason to desire to learn in the master's Program in International and Advanced Japanese Studies, and the specialized knowledge of the area to be researched, as well as the presentation ability, the communication ability, etc. The oral examination includes to evaluate the foreign language skill.

- In the special entrance exam for adults, candidates are required to take the written exam of a specialized subject and an oral exam.

The special entrance exam for adults is applicable to those who have experience as an adult member of society.

For the specialized subject, candidates, at the time of application, select one subject, which is associated to the areas of international and advanced Japanese studies; the selectable subjects are “politics”, “economics”, “literature / culture / philosophy”, “law / society / media / information”, “linguistics” and “Japanese language education”, and the candidates answer in Japanese or English (only Japanese for “Japanese language education”), so that the exam can evaluate the specialized ability to carry out international and advanced Japanese studies.

The oral exam evaluates the research plan, the problem awareness gained as an adult member of society, and the specialized knowledge of the area to be researched, as well as the presentation ability, the communication ability, etc.

## Doctoral Program in Humanities

Name of the degree to be conferred	Doctor of Philosophy in Humanities
Educational purpose	The Doctoral Program in Humanities prepares students to possess the advanced research and education abilities on an international level in the areas of humanities, including philosophy, ethics, religion, history, anthropology, literature, linguistics, culture studies and English language education, in order to adapt to changes in the circumstances surrounding humanities research and education and to social changes that arise with globalization. Moreover, the Program thereby cultivates university faculty members, researchers and so on who can engage themselves in interdisciplinary research or education by carrying out cross-disciplinary research that aims to identify and solve new global problems.
Vision of human resources development	He or she should possess the advanced specialized knowledge in the areas of humanities and the ability to independently carry out their ingenious research from a wide perspective to solve modern problems.

### Diploma Policy

The degree of Doctor of Philosophy in Humanities is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of humanities.	① If the ability to set leading-edge research tasks in the areas of humanities was acquired ② If the ability to carry out a research plan independently in the areas of humanities was acquired
7. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of humanities	① If leading-edge and advanced specialized knowledge in the areas of humanities was acquired ② If a comprehensive command of specialized knowledge in the areas of humanities was acquired



8. Ethical view: Ethical view and ethical knowledge appropriate for researchers in the areas of humanities and deep ethical knowledge about the specific area of expertise	① If the ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of humanities were acquired ② If the deep ethical knowledge about the specific area of expertise was acquired
9. Thinking ability: Ability to think affairs logically and draw conclusions based on the knowledge in one's own area of expertise and the deep scholarly knowledge in associated areas.	If the ability to think affairs logically and draw conclusions based on the advanced knowledge in one's own area of expertise and the deep scholarly knowledge in associated areas was acquired
10. Total ability: Ability to position research findings into humanities and carry out research from a broad perspective	If the ability to position research findings into humanities and carry out research from a broad perspective was acquired

#### Dissertation evaluation criteria

1. The research theme must be appropriately set and clear in significance and positioning.
  2. Associated preceding researches must be covered and critically appraised.
  3. The research method must be clearly presented.
  4. The arguments must be appropriately composed and empirical and logical.
  5. New academic findings must be included.
  6. The appropriate format as a dissertation must be provided in adherence to research ethics.
- Doctoral dissertations must be reviewed publicly by a review board which is set up with one chief reviewer and two or more sub-reviewers.

#### Curriculum Policy

The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in humanities and social sciences, and to have the big picture in mind in humanities, society and business as well as the generic knowledge and ability that support the students to be active in diverse social scenes, along with the advanced research ability, leading-edge specialized knowledge and deep ethics in humanities that involve the nine areas of philosophy, ethics, religion, history, anthropology, literature, linguistics, culture studies and English language education.

Curriculum organization policy	<p>In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, students are encouraged to take one credit from Graduate General Education Courses and Degree Programs' Common Courses.</p> <ul style="list-style-type: none"> <li>• The ability to create new knowledge to be able to contribute to future society is acquired with Graduate General Education Courses, etc.</li> <li>• The ability to plan and implement measures to identify and solve challenges from a higher perspective is acquired with Graduate General Education Courses, etc.</li> <li>• The ability to express the nature of academic findings positively and clearly is acquired with Graduate General Education Courses, etc.</li> <li>• The ability to accomplish objectives under one's leadership is acquired with Graduate General Education Courses, etc.</li> <li>• The high level of awareness and motivation to be internationally active and contribute to international society are acquired with Graduate General Education Courses, etc.</li> <li>• The ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of humanities and social sciences and the areas of humanities is acquired with Graduate General Education Courses, Major Subjects (seminar subjects), research supervision, doctoral dissertation creation, academic conference presentations, etc.</li> </ul>
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	<ul style="list-style-type: none"> <li>• The leading-edge and advanced specialized knowledge and command of the areas of humanities and social sciences and the areas of humanities are acquired with Graduate General Education Courses, Major Subjects (seminar subjects), research supervision, doctoral dissertation creation, academic conference presentations, etc.</li> <li>• The ethical view and ethical knowledge appropriate for researchers in the areas of humanities and social sciences and the areas of humanities and the deep ethical knowledge about the specific area of expertise are acquired with Graduate General Education Courses (life, environment and research ethics subjects), Major Subjects (seminar subjects), research supervision, etc.</li> <li>• The ability to think affairs logically and draw conclusions based on the advanced knowledge in one's own area of expertise and the deep scholarly knowledge in associated areas is acquired with Major Subjects (seminar subjects), doctoral dissertation creation, academic conference presentations, etc.</li> <li>• The ability to position research findings into humanities and carry out research from a broad perspective is acquired with Major Subjects (seminar subjects), research supervision, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students learn and take research supervision in accordance with a "learning plan" and a system of supervision, which are set up at the enrollment and the beginning of the year based on the research theme of each student.</li> <li>• Around the seminar subjects of each learning year, students gain more advanced and broader specialized knowledge while building their own research and making presentations to acquire the generic competences of "Competence of knowledge creation", "Management competence", "Communication competence", "Leadership competence" and "Competence in Internationality" and the specific competences of "research ability", "specialized knowledge", "thinking ability" and "overall ability". Students also acquire the specific competence of "ethical view" through seminar subjects and research supervision.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• To evaluate competence acquisition, the supervisory faculty member checks the acquisition status at the end of the student's second year, and based on the result, learning supervision is given for the third year. When a preliminary doctoral dissertation is submitted, the satisfaction of all of the following competences is evaluated. <ul style="list-style-type: none"> <li>Acquisition criteria are separately presented to students.</li> <li>Competence of knowledge creation</li> <li>Management competence</li> <li>Communication competence</li> <li>Leadership competence</li> <li>Competence in Internationality</li> <li>Research ability</li> <li>Specialized knowledge</li> <li>Ethical view</li> <li>Thinking ability</li> <li>Overall ability</li> </ul> </li> <li>• In the second half of the second year, the chief supervisory and sub-supervisory faculty members make an interim evaluation based on the academic conference presentations, paper contribution circumstances, and the overview of the doctoral dissertation.</li> <li>• In the first half of the third year, the chief supervisory and sub-supervisory faculty members make a preliminary review of the preliminary doctoral dissertation.</li> <li>• Doctoral dissertations must be reviewed publicly by a review board which is set up with one chief reviewer and two or more sub-reviewers.</li> </ul>



## Admission Policy

**Desired students** We seek candidates who have the great interest to the areas of humanities, the enthusiasm to sincerely work on research tasks, and the specialized knowledge, linguistic skill, logical thinking ability and discussion ability necessary to conduct research and who have motivation to open up a new interdisciplinary realm by not only pursuing specialty but also placing their own research into humanities.

**Selection policy** To select out enrollments, candidates are required to take the general entrance exam.

- In the general entrance exam, candidates are comprehensively evaluated with the written exam of a specialized subject and also an oral exam.

For the specialized subject, candidates select one subject, which is associated to the areas of humanities, at the time of the application for enrollment; the selectable subjects are philosophy/thought, history/anthropology, literature, linguistics, modern culture studies, English language education, etc., and the exam, which includes some test items to solve on a specialized literature written in a foreign language (one language), evaluates the basic knowledge necessary for the research of the areas of humanities, the ability of logical thinking, the specialized knowledge of the area to be researched and the linguistic skill necessary for research.

The oral exam, which has regard to the submitted master's thesis (or an equivalent paper), a research plan and other documents, evaluates the candidate's specialized knowledge of the area to be researched, the interest, enthusiasm and aptitude for research, and the motivation to contribute to the society through research, as well as the presentation ability, the communication ability, etc.

The discussion ability for the candidate's own area of expertise is evaluated with the submitted master's thesis (or an equivalent paper).

## Doctoral Program in International Public Policy

Name of the degree to be conferred	Doctor of Philosophy in International Public Policy
Educational purpose	The Doctoral Program in International Public Policy guides students to base themselves on the advanced research ability founded in the international public policy disciplines in international relations, area studies, sociology, politics, economics, anthropology, public policy studies, etc. to become university faculty members, researchers or such who understand and analyze the nature of international problems, political, economic and social problems, etc. inside and outside Japan by way of a broader, interdisciplinary spectrum of points of view crossing over multiple fields and thereby can form global opinions with their ability of solving problems and proposing solutions on changing challenges.
Vision of human resources development	He or she should possess the specialized knowledge concerning international public policy, and the international-level research ability based on the logical thinking and analytical ability for theory and demonstration. In addition, they should possess the advanced practical ability that contributes to the analysis, planning and execution of policy on the political, economic and social policy problems inside and outside Japan or the problems on individual communities and international relations.

### Diploma Policy

The degree of Doctor of Philosophy in International Public Policy is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of international public policy	① If original research findings are created by approaching to tasks using advanced expertise concerning international public policy ② If capable of internally and externally transmitting research findings concerning international public policy, and based on it, capable of practicing education and supervision

7. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of international public policy	① If analytical ability supported by the advanced expertise and logical thought in the areas of international public policy was gained ② If capable of looking to policy proposals and solutions concerning international public policy problems
8. Ethical view: Ethical view and ethical knowledge appropriate for researchers in the areas of international public policy and deep ethical knowledge about the specific area of expertise	If capable of managing one's own research process based on high ethics

#### Dissertation evaluation criteria

1. Specific research tasks must be set with a clear description of the significance and need of the research.
2. The research methods and analyses used must be appropriate to the research tasks.
3. The preceding researches in the same area must be sufficiently considered.
4. The entire dissertation must be logically developed with consistency.
5. The dissertation must be systematically structured and unified as an academic paper and have contents and style of presentation that could appear in single-volume books or scholarly journals. Note that released contents may be included.
6. Bibliography and references must be clearly shown in accordance with appropriate expressions and notational conventions.
7. The dissertation must be evaluated to show ingenuity and the potentiality of carrying out research activities independently in the future and contributing to bring new findings to the academic community.
8. Appropriate consideration must be paid for the handling of personal information and ethics.  
A dissertation for degree grant, if approved to meet all of the above criteria, passes with an oral exam included in the judgment.

#### 【Review board members】

- (1) A review board must be formed by a total of three or more reviewers who are faculty members of the Doctoral Program in International Public Policy, which are one chief reviewer (Must be a research supervisory faculty member) and two or more sub-reviewers (research supervisory faculty members or course teaching faculty members).  
If required, faculty members who do not belong to the Doctoral Program in International Public Policy (including faculty members, etc. of other universities' graduate schools or research institutes, etc.) can be added as sub-reviewers.
- (2) A review board must include two or more professors, in principle. One of the two professors can be one who does not belong to the Doctoral Program in International Public Policy, while half of the two or more professors in the board must be those who belong to the Doctoral Program in International Public Policy.

#### Curriculum Policy

The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in humanities and social sciences, and to have the big picture in mind in humanities, society and business as well as the generic knowledge and ability that support the students to be active in diverse social scenes, along with the advanced research ability, leading-edge specialized knowledge and deep ethical view for the research on international public policy that is cross-disciplinary across the areas of international relations, area studies, sociology, politics, economics, anthropology, public policy studies, etc.

Curriculum organization policy	In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, students are encouraged to take one credit from Graduate General Education Courses and Degree Programs' Common Courses. • The ability to create new knowledge to be able to contribute to future society is acquired with Graduate General Education Courses, Major Subjects (seminar subjects), etc.
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	<ul style="list-style-type: none"> <li>• The ability to plan and implement measures to identify and solve challenges from a higher perspective is acquired with Graduate General Education Courses, Major Subjects (seminar subjects), etc.</li> <li>• The ability to express the nature of academic findings positively and clearly is acquired with Graduate General Education Courses, Major Subjects (seminar subjects), etc.</li> <li>• The ability to accomplish objectives under one's leadership is acquired with Graduate General Education Courses, Major Subjects (seminar subjects), etc.</li> <li>• A high level of awareness and motivation to be internationally active and contribute to international society is acquired with Graduate General Education Courses, Major Subjects (seminar subjects), etc.</li> <li>• The ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of humanities and social sciences and the areas of international public policy is acquired with Major Subjects (seminar subjects), Seminar on International Public Policy Project, research supervision, doctoral dissertation creation, academic conference presentations, etc.</li> <li>• The leading-edge and advanced specialized knowledge and command of the areas of humanities and social sciences and the areas of international public policy are acquired with Major Subjects (seminar subjects), research supervision, doctoral dissertation creation, academic conference presentations, etc.</li> <li>• The ethical view and ethical knowledge appropriate for researchers in the areas of humanities and social sciences and the areas of international public policy and deep ethical knowledge about the specific area of expertise are acquired with Graduate General Education Courses (life, environment and research ethics subjects), Seminar on International Public Policy Project, research supervision, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students are required to take Major Subjects (seminar subjects) as the basal learning. Through the discussions in seminars, students acquire the advanced specialized knowledge, research ability and International character for the tasks that each one works on and at the same time develop Competence of knowledge creation, Communication competence, and Leadership competence.</li> <li>• Taking Graduate General Education Courses is encouraged to complement the development of generic competences and ethics.</li> <li>• Toward the writing of a doctoral dissertation, the research process of each student is supported through the dissertation supervision by supervisory faculty members by way of "Seminar on International Public Policy Project", etc., including the development of the Management competence and ethics. In addition, the advanced research ability in the areas of humanities and social sciences and international public policy is enhanced by setting their sights at the transmission of research findings, such as presentations in the academic community inside and outside Japan and the contribution of articles in specialized scholarly journals.</li> </ul>
Evaluation of learning outcomes	<p>The achievements of knowledge and ability specified as the diploma policy are evaluated as follows.</p> <ul style="list-style-type: none"> <li>• At the end of the second year, the supervisory faculty members and the curriculum board make an interim evaluation of competence achievement by checking the learning completion status and the number of credits earned. Based on the result, students are supervised for the learning in the third year.</li> <li>• At the submission of a doctoral dissertation, the supervisory faculty members and the curriculum board make the final evaluation of competence achievement by checking whether the subjects covering the competences have been taken.</li> <li>• The supervisory faculty members and sub-supervisory faculty members evaluate the acquisition of the competences through the qualification of the outcomes of "Seminar on International Public Policy Project" and the oral exam for the dissertation review.</li> <li>• Whether the dissertation is based on the above competences and whether its outcomes show the adequacy to grant the doctor's degree (International Public Policy) are evaluated through the dissertation review by multiple reviewers including supervisory faculty members and sub-supervisory faculty members as well as the public presentation.</li> </ul>

## Admission Policy

### Desired students

Through the writing of a master's thesis and social experience, he or she should gain the sophisticated logical thinking ability and specialized knowledge about the modern society and international problems lying in the globalized, complex world as well as the sensibility for grasping diverse social problems and political realities. We seek human resources who thereby can put actively their advanced expertise into practical use at work and verbalize concrete policy proposals and solutions for the problems of modern society and international relations, using the advanced, flexible thinking ability and motivation that they have.

### Selection policy

Diverse candidates are sought through the general entrance exam, recommendation entrance exam, the special selection for those who wish to complete the Program by taking only English-taught courses, and other enrollment selection methods. The entrance examination is offered multiple times each academic year, and a certain number of candidates are offered places after each examination. There are two entrance examination systems, as outlined below.

- First, in the general entrance exam system, candidates are comprehensively evaluated through written exams in a specialized subject, a foreign language, as well as an oral exam. For example, for the specialized subject area, when filling up the enrollment application, candidates designate one subject area that is associated with international public policy such as international relations, social development, anthropology, sociology, politics, area studies, or economics, etc. Through answering a written exam question focusing on their designated area, the exam evaluates the candidate's logical thinking ability, specialized knowledge of the area to be researched, and sensitivity to social and political problems.

The oral exam focuses on the candidate's research plan for his/her master's thesis, including evaluating ability to make use of advanced expertise in actual work actively, advanced and flexible thinking ability and motivation to propose policy to social and political problems, and specialized knowledge of the area to be researched. Candidates are also evaluated on other factors such as their presentation and communication skills.

- Second, in the recommendation entrance exam system, candidates are evaluated comprehensively by writing a paper as a written exam and undergoing an oral exam. Faculty members with experience in instructing candidates at the undergraduate level, including sufficient knowledge of candidates' abilities, personality, and individual qualities, prepare a written recommendation for the candidates. Faculty members will confirm that candidates have already acquired the specialized knowledge, continuous research ability, and foreign language command necessary for postgraduate research in areas related to international public policy.

The paper submitted by candidates as the written examination for this system demonstrates that they possess specialized knowledge of the area to be researched and the flexibility to apply actual expertise in their chosen area.

In the oral exam stage, which also includes the faculty-member recommendation and the candidate's research plan, candidates are evaluated on the possibility of their achieving their research plan, their enthusiasm and motivation for research, their specialized knowledge of their chosen research area, and their overall research skills, as well as their presentation and communication skills.

- Special selection methods are applied to early-career civil servants and other currently employed young professionals in developing and emerging countries. These comprehensive methods include document screening and an oral exam. Document screening involves examining the candidate's research plan, including basic knowledge and the possibility of achieving the research plan, as well as transcripts. The oral exam, which is based on the candidate's submitted documents, evaluates research ability, specialized knowledge of the research field, research plan relevance and the candidate's possibility of achieving the research plan's objectives. The candidate's enthusiasm and motivation for research, as well as presentation and communication skills, are also evaluated.

## Doctoral Program in International and Advanced Japanese Studies

Name of the degree to be conferred	Doctor of Philosophy in International and Advanced Japanese Studies
Educational purpose	In today's globalized world, the Doctoral Program in International and Advanced Japanese Studies cultivates researchers and educators who possess the research and education abilities concerning Japanese culture and society crossing over humanities, social sciences and Japanese language education to transmit the findings of such research widely inside Japan and also overseas from an international, comparative point of view. The Program also seeks to cultivate internationally and scholarly active human resources in the world, specializing in the areas of both humanities and social sciences as well as Japanese language education.
Vision of human resources development	He or she should possess a broader specialized knowledge and spectrum of points of view in order to shed light on the contemporary Japan's characteristics from a global perspective and also should possess the basic skills for it. In addition, through learning in a wide area of associated fields, he or she should be potentially capable of engaging in highly specialized professions or research activities. As for Japanese language education, he or she should possess the ability to internationally research the study and education fields in greater depth, and the research ability to transmit specialized scholarly knowledge about Japanese language education to the world, as well as the education ability and the advanced professional ability.

### Diploma Policy

The degree of Doctor of Philosophy in International and Advanced Japanese Studies is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?



6. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of international and advanced Japanese studies	① If the ability to set leading-edge research tasks in the areas of international and advanced Japanese studies was acquired ② If the ability to carry out a research plan independently in the areas of international and advanced Japanese studies was acquired
7. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of international and advanced Japanese studies	① If leading-edge and advanced specialized knowledge in the areas of international and advanced Japanese studies was acquired ② If a comprehensive skill of specialized knowledge in the areas of international and advanced Japanese studies was acquired
8. Ethical view: Ethical view and ethical knowledge appropriate for researchers in the areas of international and advanced Japanese studies and deep ethical knowledge about the specific area of expertise	① If the ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of international and advanced Japanese studies were acquired ② If the deep ethical knowledge about the specific area of expertise was acquired

#### Dissertation evaluation criteria

##### (Review system)

- (1) The review exclusive board members (exclusive reviewers) must include a total of three or reviewers, which are one chief reviewer (research supervision) and two sub-reviewers (research supervisory or course teaching faculty members) appointed from the members of the faculty member meeting for the applicable Degree Programs; the one chief reviewer and half or more of the sub-reviewers are appointed from the members of the Faculty Meeting for Doctoral Program in International and Advanced Japanese Studies of the Degree Programs in Humanities and Social Sciences.
- (2) At least one of the exclusive reviewers belonging to the Doctoral Program in International and Advanced Japanese Studies of the Degree Programs in Humanities and Social Sciences must be a doctor's degree holder.
- (3) At least one of the exclusive reviewers belonging to the Doctoral Program in International and Advanced Japanese Studies of the Degree Programs in Humanities and Social Sciences must be a research supervisory faculty member as a member of Faculty Meeting for the Doctoral Program in International and Advanced Japanese Studies over a year or more continuously after the review exclusive board breaks up.
- (4) Faculty members of Tsukuba who do not teach in any subject of Graduate School's Degree Programs can be added as sub-reviewers of the review exclusive board if approved as essential to the review of the degree dissertation for the Doctoral Program in International and Advanced Japanese Studies.
- (5) Faculty members or such who belongs to other Graduate Schools, Degree Programs or such of Tsukuba or faculty members of other universities' graduate schools or other research institutes or such can be added as sub-reviewers of the review exclusive board if approved as essential to the review exclusive board for the degree dissertation for the Doctoral Program in International and Advanced Japanese Studies.

##### (Evaluation items)

Dissertations must be reviewed based on the following items.

- ① The tasks are appropriately set up with ingenuity.
- ② The line of reasoning is clear and consistent.
- ③ Highly complete analyses are done using accurate terminology.
- ④ The findings of preceding researches are grasped sufficiently and expanded.
- ⑤ Literature and materials are approximately used
- ⑥ The style of presentation and composition are appropriate.
- ⑦ The advanced academic level in the area is reached with new academic contributions

##### (Evaluation criteria)

A dissertation for degree grant meeting all of the above evaluation items passes with the final exam or the confirmation of academic ability included in the judgment.

## Curriculum Policy

The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in humanities and social sciences, and to have the big picture in mind not only in humanities, society but also business scene as well as the generic knowledge and ability that support the students to be active in diverse social scenes, along with the advanced research ability, leading-edge specialized knowledge and deep ethics in international and advanced Japanese studies that involve the three areas of humanities, social sciences and Japanese language education.

### Curriculum organization policy

In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's primarily interested research at the core, students are encouraged to take one credit from Graduate General Education Courses and Degree Programs' Common Courses.

- The ability to create new knowledge to be able to contribute to future society (1. Competence of knowledge creation) is acquired with Graduate General Education Courses, Project Seminar 3A, 3B, 4A and 4B and other Major Subjects, doctoral dissertation creation, academic conference presentations, etc.
- The ability to plan and implement measures to identify and solve challenges from a higher perspective (2. Management competence) is acquired with Graduate General Education Courses, Project Seminar 3A, 3B, 4A and 4B and other Major Subjects, self-check on level of attainment, participation in external contests, etc.
- The ability to express the nature of academic findings positively and clearly (3. Communication competence) is acquired with Graduate General Education Courses, Project Seminar 3A, 3B, 4A and 4B and other Major Subjects, academic conference presentations, poster presentations, etc.
- The ability to accomplish objectives under one's leadership (4. Leadership competence) is acquired with Graduate General Education Courses, Project Seminar 3A, 3B, 4A and 4B and other Major Subjects, teaching assistant experience (graduate school seminars, etc.), project participation experience, etc.
- The high level of awareness and motivation to be internationally active and contribute to international society (5. Competence in Internationality) is acquired with Graduate General Education Courses, Comparative Japanese Literature 1A and other Major Subjects, overseas activity experience, joint research with foreigners (including international students), TOEIC, international conference presentations, English thesis creation, etc.
- The ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of humanities and social sciences and the areas of international and advanced Japanese studies (6. Research ability) is acquired with Graduate General Education Courses, Project Seminar 3A, 3B, 4A and 4B and other Major Subjects, research supervision, doctoral dissertation creation, academic conference presentations, etc.
- The leading-edge and advanced specialized knowledge and command of the areas of humanities and social sciences and the areas of international and advanced Japanese studies (7. Specialized knowledge) are acquired with Graduate General Education Courses, Comparative Japanese Literature 1A and other Major Subjects, research supervision, doctoral dissertation creation, academic conference presentations, etc.
- The ethical view and ethical knowledge appropriate for researchers in the areas of humanities and social sciences and the areas of international and advanced Japanese studies and deep ethical knowledge about the specific area of expertise (8. Ethical view) are acquired with Graduate General Education Courses (life, environment and research ethics subjects), Project Seminar 3A, 3B, 4A and 4B and other Major Subjects, research supervision, etc.



Learning methods • Processes	<ul style="list-style-type: none"> <li>• The “Project Seminar” seeks to deepen the research while enhancing the presentation ability by presenting the conception and interim outcomes of the doctoral dissertation in front of many faculty members and other students in the doctoral program.</li> <li>• Other Major Subjects provide to sophisticate the conception of the doctoral dissertation while the student acquires extensive associated knowledge through advanced seminars in the fields deeply associated to the research theme.</li> <li>• In accordance with the acquisition criteria set up for each of the eight competences, students learn while pressing on toward meeting the criteria 50% or more by the end of the first year, 70% or more by the end of the second year, and 100% by the end of the third year. Acquisition criteria are separately presented to students.               <ol style="list-style-type: none"> <li>1. Competence of knowledge creation</li> <li>2. Management competence</li> <li>3. Communication competence</li> <li>4. Leadership competence</li> <li>5. Competence in Internationality</li> <li>6. Research ability</li> <li>7. Specialized knowledge</li> <li>8. Ethical view</li> </ol> </li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• In “Project Seminars” , students critically appraise the research findings that each student has made so far through question-and-answer sessions based on each student’s presentation on the conception of the doctoral dissertation to help them clarify his/her respective positions in the path toward the completion of the doctoral dissertation as well as the direction of the research from now on. In also other Major Subjects, each student makes such presentations that organically associate the theme of the seminar with the research theme of his/her doctoral dissertation to enhance research levels through critically appraising his/her existing ideas and the findings by way of debates with faculty members and other participating students. As the final step, the learning outcomes are evaluated with the public hearing on the dissertation for a doctor’s degree, the preliminary review and the review.</li> <li>• Competence achievement is evaluated as follows.               <ol style="list-style-type: none"> <li>① The supervisory faculty member makes an evaluation in “Project Seminar” 3A or 3B at the end of the first year and supervises the acquisition during the second year.</li> <li>② The supervisory faculty member makes an evaluation in “Project Seminar” 4A or 4B at the end of the second year and supervises the acquisition during the third year.</li> <li>③ The supervisory faculty member makes an evaluation in the preliminary review of doctoral dissertation, and the dissertation fails if any of the criteria of competence/ability acquisition 1 to 8 is not met or is not expected to be met.</li> </ol> </li> </ul>
Admission Policy	
Desired students	<p>We seek students and adult members of society who have motivation to research Japan’s culture and society from an internationally comparative point of view and to apply the findings of such research to address various problems of Japan, East Asia and other countries under their initiative.</p> <p>In the Doctoral Program, we widely seek students or adult members of society who have motivation to squarely face these problems as researchers or other professionals with advanced research ability.</p> <p>As for Japanese language education, we seek students or adult members of society who gain the ability to research the international study and education fields in greater depth, with the motivation to transmit specialized scholarly knowledge about Japanese language education to the world.</p> <p>In the Doctoral Program, we widely seek students or adult members of society who have motivation to squarely face these problems as researchers or other professionals with advanced research ability.</p>

## Selection policy

Diverse candidates are sought through the general entrance exam, recommendation entrance exam, special entrance exam for adults or other enrollment selection methods. The opportunity of entrance exam is offered multiple times in the same year with the split of the number of persons admitted.

- In the general entrance exam, candidates are comprehensively evaluated with the written exam of a specialized subject and an oral exam.

For the specialized subject, candidates, at the time of application, select one subject, which is associated to the areas of international and advanced Japanese studies; the selectable subjects are “politics”, “economics”, “literature / culture / philosophy”, “law / society / media / information”, “linguistics” and “Japanese language education”, and the candidates answer in Japanese or English (only Japanese for “Japanese language education”), so that the exam can evaluate the specialized ability to carry out the Doctoral Program in high levels of international and advanced Japanese studies as well as the specialized knowledge of the area to be researched.

Candidates are not required to take a written exam of foreign language because the exam of the specialized subject, in which candidates are required to use the language that they will use to write their doctoral dissertations, and the submitted documents such as their master’s theses and research plans, can serve to demonstrate their linguistic skill.

The oral exam, which has regard to a research plan, etc., evaluates learning outcomes, the thinking ability, linguistic skill, the candidate’s enthusiasm and motivation for research, and the specialized knowledge of the area to be researched, as well as the presentation ability and the communication ability.

- In the recommendation entrance exam, candidates are required to write an essay as the written exam and take an oral exam.

The recommendation entrance exam is applicable to students who have earned or will earn a master’s degree with the aim of working at universities or other research institutions as researchers, overseas university faculty or highly skilled professionals.

As applicable candidates have already earned or will earn a master’s degree, writing an essay takes the place of the exam of a specialized subject to evaluate the knowledge and understanding of the specialized area, the logical thinking ability and other specialized abilities to carry out high levels of international and advanced Japanese studies in the doctoral program.

The oral exam, which has regard to a research plan, etc., evaluates the motivation to squarely face international and advanced Japanese studies, the research plan, the reason to desire to learn in the Doctoral Program in International and Advanced Japanese Studies, and the specialized knowledge of the area to be researched, as well as the presentation ability, the communication ability, etc.

- In the special entrance exam for adults, candidates are required to take the written exam of a specialized subject and an oral exam.

The special entrance exam for adults is applicable to those who have experience as an adult member of society.

For the specialized subject, candidates, at the time of application, select one subject, which is associated to the areas of international and advanced Japanese studies; the selectable subjects are “politics”, “economics”, “literature / culture / philosophy”, “law / society / media / information”, “linguistics” and “Japanese language education”, and the candidates answer in Japanese or English (only Japanese for “Japanese language education”), so that the exam can evaluate the specialized ability to carry out high levels of international and advanced Japanese studies. The oral exam evaluates the research plan, the problem awareness gained as an adult member of society, and the specialized knowledge of the area to be researched, as well as the presentation ability, the communication ability, etc.

## Master's Program in Law

Name of the degree to be conferred	Master of Law
Educational purpose	To respond to the demand for human resources in the areas of business law, the Master's Program in Law seeks to develop and re-educate highly specialized professionals who possess the professional legal ability to present appropriate solutions for the legal problems that companies face in the modern society.
Vision of human resources development	This program, which is intended for those who have certain working experience at a company, fosters highly specialized professionals who can solve diverse problems arising in the modern society using specialized legal knowledge and the legal way of thinking.

### Diploma Policy

The degree of Master of Law is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Basic specialized knowledge: Basic way of thinking in law and basic specialized knowledge about the areas of business law.	① If the basic way of thinking was gained in law ② If basic knowledge was gained in the areas of business law
7. Ability to investigate and analyze literatures and precedents: Ability necessary for business law research to investigate and analyze literatures, judicial precedents, etc.	① If the literacy to search and investigate on one's own gained to obtain literatures, judicial precedents, etc. necessary to learn or research in business law ② If obtained literatures, judicial precedents, etc. are accurately read and analyzed, and obtained information is sorted out
8. Deep knowledge about the specific area of business law: Specialized knowledge necessary for the comprehension and research about at least one major area of business law	① If the deep knowledge about at least one major area of business law is gained and understood ② If capable of carrying out research based on the deep knowledge and comprehension about at least one major area of business law

9. Thesis writing ability: Ability to write a thesis (Especially one supported by the problem awareness behind the experience as an adult member of society, etc.) based on the deep knowledge about at least one major area of business law
- ① If research is carried out and organized into a thesis with an appropriate research theme set up based on the deep knowledge about at least one major area of business law
  - ② If the problem awareness behind the experience as an adult member of society, etc. is incorporated in research and is reflected in the thesis

#### Dissertation evaluation criteria

Evaluation items for degree thesis

1. The thesis must show originality (Especially, supported by the problem awareness behind the experience as an adult member of society, etc.).
2. A wide range of important literature is investigated, and based on the comprehension of it, one's own ideas are expanded.
3. References and bibliography must be appropriately shown.

Review board members · Review method

The review of degree theses requires the approval of the review board members formed by one chief reviewer and two or more sub-reviewers. As sub-reviewers, those who are not a full-time faculty member belonging to the Master's Program in Law can be added. A thesis for degree grant meeting all of the above evaluation items passes as a master's thesis with the final exam included in the judgment.

#### Curriculum Policy

- Basic specialized knowledge: The Program offers an extensive range of subjects from foundation subjects in the area of business law to applied subjects in the areas of "Corporate Law", "International Business Law", "Intellectual Property Law", "Social Economic Law", "Social and Economic Law" and "Tax Law".
  - Ability to investigate and analyze literatures, etc.: The Program offers Legal Research and Writing to develop the ability to investigate and analyze literatures.
  - Gain of deep specialized knowledge: The Program sets up seminars and other highly specialized subjects taught by full-time faculty members, and from the viewpoint of learning the latest working circumstances, some subjects are taught by professional practitioners as part-time faculty members.
- Moreover, the Program has subjects participated by those who have completed Seminar on Civil Law, Seminar on Commercial Law, Seminar on Tax Law, Case Study of Labor Law and so on and the doctoral program students, etc.

Curriculum  
organization policy

In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, the Program offers Degree Programs' Common Courses, Inter-disciplinary Foundation Courses to support students' research ability.

The Program offers common Major Subjects and sets up subjects in the areas of "Corporate Law", "International Business Law", "Intellectual Property Law", "Social and Economic Law" and "Tax Law" to gain specialized knowledge in these areas, and students gain advanced specialized knowledge through seminars, etc. Specifically, the following subjects are set up.

Note that students can freely take any subjects in any area.

- Common Major Subjects: Legal Research and Writing, Introduction to Business Law, Special Studies on Business Law, etc.
- Major Subjects **【Areas of corporate law】** Contract Law, Property Law, Security Law, Corporation Law, Accounting and Law, Securities Exchange Law, Civil Procedure Law, etc.
- Major Subjects **【Areas of international business law】** Conflict of Laws, International Economic Law, International Civil Procedure, etc.
- Major Subjects **【Areas of intellectual property law】** Copyright Law, Patent Law, Unfair Competition Law, Trademark Law, Design Law, International Intellectual Property Law, etc.
- Major Subjects **【Areas of social/economic law】** Antimonopoly Law, Labor and Employment Law, Social Security Law, etc.

	<ul style="list-style-type: none"> <li>• Major Subjects 【Areas of tax law】 Tax Law on Business, Tax Procedural Law, International Taxation, etc.</li> <li>• Seminar, etc.: Security Law Seminar, Contract, Tort Law Seminar, Company Law Seminar, Seminar on Civil Procedure Law, Conflict of Laws Seminar, Intellectual Property Law Seminar, Labor and Employment Law Seminar, Social Security Law Seminar, Tax Planning seminars, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• At the time of enrollment, each student is set up with supervisory faculty members in the specialized realm closest to the research theme that the student entered in his/her research plan, etc. Then, through learning the required subjects “Special Studies on Business Law I to VI” , each of the supervisory faculty members gives the student one-on-one supervision on learning.</li> <li>• As for the learning of Major Subjects, students are encouraged to select them around those in the area corresponding to their respective research plans and the issues in which he or she is interested, let alone take Common Major Subjects. To select the subjects to be taken in the area, a learning plan is created according to the student’s need under the advice of the supervisory faculty member, and the student learns in accordance with the plan.</li> <li>• To complete the Program, students must earn 30 credits or more including the required subjects (Special Studies on Business Law I to VI) of six credits, and in addition, a master’s thesis, which goes through the interim report and then is submitted in accordance with the regulations stipulated by the degree program, needs to pass its review and the final exam.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The learning outcomes of Common Major Subjects and Major Subjects are evaluated by the faculty member in charge of each subject, who evaluates students’ performance in various forms, including exams, reports, and class participation and contribution, and appraises the credits based on these.</li> <li>• “Special Studies on Business Law I to VI” are positioned as required Major Subjects to give personal attention for thesis supervision. Each supervisory faculty member grants credits in accordance with the achievement and progress of each student in master’s thesis research.</li> <li>• To evaluate the outcomes during the research process of master’s theses, the students in the second year since enrollment are required to submit a more concrete research plan. In the fall of the second year, the interim report sessions of master’s theses, in which in principle all students who will submit a master’s thesis must participate, are opened to allow the faculty members of the major to grasp each student’s progress and to create opportunities for exchanging opinions to produce higher quality master’s theses.</li> <li>• To evaluate the outcomes of a master’s thesis, a review exclusive board formed by one chief reviewer and two sub-reviewers (external experts may be asked to participate depending on the theme) is set up, then evaluates the thesis and gives an oral exam under participation of, in principle, all faculty members of the major. The acceptance of the thesis is judged with its contents and the result of the final exam included.</li> </ul>
Admission Policy	
Desired students	We seek candidates who have certain working experience at a company and have strong motivation to learn and enthusiasm to be able to develop the ability as highly specialized professionals to solve diverse problems arising in the modern society using specialized legal knowledge and the legal way of thinking.
Selection policy	<p>Candidates are selected with a research plan and interview.</p> <ul style="list-style-type: none"> <li>• Research plan Candidates are evaluated around the problem setting ability, planning ability, specialized knowledge and other requirements for research.</li> <li>• Interview Candidates are evaluated around the basic legal thinking, logical thinking, critical thinking, the research ability, specialized knowledge, communication ability, etc.</li> </ul>



## Master's Program in Business Administration

Name of the degree to be conferred	Master of Business Administration
Educational purpose	The Master's Program in Business Administration seeks to cultivate highly specialized professionals who can deal with new management problems that arise with changes in business and the complication of technologies.
Vision of human resources development	<p>He or she should possess specialized knowledge appropriate to the master's (business administration) degree, as well as the deep logical thinking ability and the ability to logically organize the content of thought.</p> <p>Specifically, the Program cultivates human resources who have the ability to identify business problems and to meld research and business and also who can take the initiative to pursue solutions with broad interests beyond the area of expertise. These human resources also include those who have the interests and knowledge about academic approaches as well as the ability to apply them to research themes which are based on business challenges, let alone who have the problem awareness rooted in business.</p>

### Diploma Policy

The degree of Master of Business Administration is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Ability to think from various management perspectives: Ability to have deep specialized knowledge about work and think from various perspectives such as of strategies, organizations, finance and marketing.	① If extensive knowledge about business administration and business science was gained ② If management challenges, etc. other than those in one's own area of expertise (including industries, job categories, etc.) are understood and if capable of debating them
7. Ability to identify management problems: Ability to identify and clarify problems from work scenes on one's own	① If one identifies the whereabouts of management challenges based on one's gained knowledge ② If the nature of identified challenges is clarified and if capable of talking about them in one's own words to share with others



8. Ability to solve management problems: Ability to repair problems in modern society from a new perspective by the systematization of knowledge and experience.	① If the theory of the quantitative or qualitative analysis methodology is understood and appropriately applied ② If obtained results are interpreted into one's own words to debate with others
9. Ability to create new management knowledge: Ability to create new knowledge about work.	① If new management hypotheses or challenges is set up based on gained extensive knowledge
10. Ability to practice management at work: Ability to put created knowledge into practice at worksites	① If gained extensive knowledge is applied as a bridge between theory and practice ② If the applicable range, etc. of gained knowledge is grasped

#### Dissertation evaluation criteria

The following seven items are used as evaluation items.

1. Identification of important problems or academically unsolved problems in management scenes
2. Presentation of the basic grasping of preceding researches and of the positioning of research tasks
3. Presentation of research objectives and methods
4. Appropriate construction and development of line of reasoning
5. Mention of academic contributions and working-level contributions
6. Adherence to research ethics
7. Appropriate citation of literature and the style of presentation compliant to rules

In the thesis review and the final exam, the degree thesis review board formed by one chief reviewer and two or more sub-reviewers evaluates the thesis for degree grant, which contains the above evaluation items, and judges if the thesis is acceptance from the perspectives of degree thesis levels.

#### Curriculum Policy

Students acquire the research ability, specialized knowledge and ethical view in the three realms of business administration, mathematical science and information science that are required of highly specialized professionals and also obtain education that incorporates the basic skills and generic knowledge of business law around the Degree Programs' Common Courses.

Lecture subjects concentrate on the strategies and organizations, marketing, accounting and finance that are commonly considered to be the core realms in business administration, while embracing the realms associated to quantitative analysis and information technologies that are important when thinking of the modern management.

In the research aspect, through the research subjects assigned in each semester and the stage presentations, the Program progresses in phases, with the clarification of tasks, analyses in specialized manners, the summarization of results, and finally business feedback study.

In addition, a system of research supervision with multiple faculty members cultivates the ability to identify problems, logic forming skills and the ability to create new knowledge so that students acquire the ability to think from various perspectives.

Curriculum organization policy	<p>In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, students are highly encouraged to take Degree Programs' Common Courses, Inter-disciplinary Foundation Courses, Graduate General Education Courses.</p> <p>The Program concentrates on the management strategies and management organizations, marketing, accounting and finance that are commonly considered to be the core realms in business administration, while embracing the subjects of the mathematical and information associated realms. The Program is also designed to develop the abilities shown in Diploma Policy through research.</p> <p>Research includes the research plan presentation, overview presentation, mid-term presentation, preliminary review and final exam stages to help students organize their research activities be organized.</p> <p>Through a system of supervision with multiple faculty members, students acquire the ability to think from various perspectives.</p>
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	<ul style="list-style-type: none"> <li>• The ability to think from various management perspectives is acquired with the Inter-disciplinary Foundation Courses “Top Lecture I and II” , etc.</li> <li>• The ability to identify management problems is acquired with the Degree Programs’ Common Courses “Introduction to Business Management” , “Fundamental Accounting” , etc.</li> <li>• the ability to solve management problems is acquired with the Major Subject “Consumer Behavior” , etc.</li> <li>• The ability to create new management knowledge is acquired with the Major Subject “Operations Research” , etc.</li> <li>• The ability to practice management at work is acquired with the Major Subjects “Marketing Research” , etc.</li> <li>• The ability to think from various management perspectives, ability to identify management problems, ability to solve management problems, ability to create new management knowledge, and ability to practice management at work are acquired with the research subject “Systems Management” , etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students learn from “General Foundation Subjects” , which provides basic education of the areas in business administration, “Major Subjects” , which lecture on specialized contents, “ Inter-disciplinary Foundation Courses” , which lecture on the basic literacy common in the Graduate School, and “Degree Programs’ Common Courses” , which lecture on the basic literacy common in the degree programs.</li> <li>• Research is supervised around a chief supervisory faculty member through “research subjects” . From the second academic year, two sub-supervisory faculty members including those who are in other realms are added to the supervision to give support from diversified points of view.</li> <li>• For master’s theses, a thesis review board is set up after the overview (research plan) presentation, mid-term presentation and preliminary review. Then, the thesis is reviewed along with the final presentation and final exam.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The requirements that should be achieved at each stage of research plan, overview presentation, mid-term presentation, drafting, preliminary review and final exam are clarified and the achievement is evaluated through presentations and question-and-answer sessions at the time of the research presentation and review board and final exam.</li> <li>• In the presentation, evaluation is made by all faculty members with the chief supervisory and sub-supervisory faculty members at the center.</li> <li>• In preliminary review board, evaluation is made by the faculty members in charge of preliminary review, who are mainly formed by the chief supervisory and sub-supervisory faculty members.</li> <li>• In final exam, acceptance is judged with an evaluation made by the thesis review board formed by chief and sub-reviewers.</li> </ul>
Admission Policy	
Desired students	<p>As the nature of the graduate school for adult members of society, students are required to have problem awareness rooted in business as a matter of course, but since it is handled in the form of research, the interest and knowledge about academic approaches also play the key roles.</p> <p>In the process of planning and carrying out research, students are required to keep an active attitude to give contemplation by the investigation of literature, etc. on their own and thereby lead to solutions. Moreover, since diverse students of different ages and backgrounds are intermingled, it is important to have broad interests beyond one’s business operations in change or the realms of expertise.</p>
Selection policy	<p>Candidates are comprehensively evaluated with the following evaluations.</p> <ul style="list-style-type: none"> <li>• Research plan: Problem awareness, research approach, specialized knowledge, the usefulness, feasibility and ingenuity of research, sentence expressiveness</li> <li>• Paper: Broad interests and deep understanding of problems in business and society, logical thinking ability, sentence expressiveness</li> <li>• Oral exam: Research plan comprehension, specialized knowledge, motivation for learning and research, ability to express one’s thought</li> </ul>

## Doctoral Program in Law

Name of the degree to be conferred	Doctor of Philosophy in Law
Educational purpose	To respond to the social demand for the development and re-education of highly specialized professionals, the Doctoral Program in Law seeks to develop highly specialized professionals who have comprehensive and advanced judgment ability to present appropriate solutions as to new types of legal problems faced by companies and society, as well as researchers who can effectively take advantage of such experience.
Vision of human resources development	The Program puts its main focus on the re-education of highly specialized professionals who are active in companies or society. Therefore, the Program trains adult members of society who have worked for companies, governmental organizations, etc. for roughly two or more years as of enrollment and who can plan and carry out research with a high problem awareness backed up by such experience.
Diploma Policy	
The degree of Doctor of Philosophy in Law is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Advanced specialized knowledge, methodology and analysis ability: Advanced specialized knowledge, methodology and analysis ability to set up research tasks and carry out leading-edge, ingenious research based on logic and objective evidence	① If research tasks are set up and leading-edge, ingenious research is carry out based on logic and objective evidence ② If specialized knowledge, basic research methodology and analysis ability necessary for setting up research tasks and carrying out leading-edge, ingenious research were gained

7. Ability to create new knowledge through the investigation/analysis of literatures, precedents, etc.: Ability to create new knowledge by interpreting human and social problems in a diversified, multilevel and comprehensive manner	① If literatures, precedents, etc. are appropriately investigated and analyzed, and human and social problems are interpreted in a diversified, comprehensive manner ② If new knowledge is created based on the investigation and analysis of literatures, precedents, etc.
8. Deep understanding and scholarly knowledge about one's area of expertise: Practical ability to solve the problems we face today and to make efforts to contribute toward the continuous development of the society based on the deep understanding and scholarly knowledge about one's own area of expertise	① If practical ability was gained to solve the problems we face today based on the deep understanding and scholarly knowledge about one's own area of expertise ② If practical ability was gained to make efforts to contribute toward the continuous development of the society
9. Extensive basic knowledge about the realms interdisciplinary to one's own area of expertise: Practical ability to solve the problems we face today and to make efforts to contribute toward the continuous development of the society based on the extensive basic knowledge about the realms interdisciplinary to one's own area of expertise	① If practical ability was gained to solve the problems we face today based on not only one's own area of expertise but also the interdisciplinary realms' extensive basic knowledge ② If practical ability was gained to make efforts to contribute toward the continuous development of the society
10. Ability to pass down knowledge to the next generation through dissertation writing, etc.: Ability to pass down knowledge to the next generation with the appropriate transmission of advanced academic findings to the experts inside and outside Japan through dissertation writing, etc.	① If ability to pass down knowledge to the next generation was gained with the appropriate transmission of advanced academic findings to the experts inside and outside Japan through dissertation writing and other means

#### Dissertation evaluation criteria

##### Evaluation items for dissertation

1. The theme must be researched using comparative law methodology in relation to at least one major country or using demonstrative research, actual condition survey, historical research or economic methodology.
2. The theme must be critically analyzed with the organized collection and investigation of literatures and materials.
3. The student must have the specialized knowledge associated to the theme.
4. The dissertation must be highly original about the theme.

##### Review board members • Review method

The review of dissertations requires the approval of the review board members formed by one chief reviewer and four or more sub-reviewers. As sub-reviewers, one or more than one reviewer who is not a full-time faculty member belonging to the Doctoral Program in Law must be included. The public review board must be held at least once. A dissertation for degree grant meeting all of the above evaluation items passes as a doctoral dissertation with the final exam or the confirmation of academic ability included in the judgment.

## Curriculum Policy

To develop the abilities listed in the above diploma policy (DP), the Program offers Special Studies (Individual Research) I to IX and also the many subjects requiring mainly the reading of foreign legal literature or handling foreign laws.

In addition, students are allowed to audit or attend the subjects of associated Programs, especially the subjects in which those who have completed a Program or withdrawn from the doctoral program with the completion of course requirement or general professionals, etc., such as Seminar on Tax Law, Case Study of Labor Law, Seminar on Commercial Law, Seminar on Civil Law, which are subjects in the Master's Program in Law.

Moreover, Degree Programs' Common Courses and Inter-disciplinary Foundation Courses are offered in order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas. As required, faculty members in the Program in Business Administration (D), etc. are enlisted to support the writing of a doctoral dissertation with originality.

Curriculum organization policy	<p>The Program offers Common Major Subjects and Major Subjects. The Major Subjects relate to various research themes and correspond to each of the four areas of education and research in the Doctoral Program in Law, which are “company globalization”, “corporate organization and finance”, “information technologies and companies” and “social and economic law”. Specifically, the following subjects are offered.</p> <ul style="list-style-type: none"> <li>• Common Major Subjects: Special Studies (Individual Research) I to IX</li> <li>• Major Subjects (Area of company globalization): Comparative Corporation Law, International Tax Planning II, International Tax Planning IV, Seminar on American Civil Procedure Law, Seminar on German Procedure Law, Cross-Border Transactions and Private International Law, Foreign Capital Markets Law and Regulation</li> <li>• Major Subjects (Area of corporate organization and finance): Modern Corporation Law, International Corporate Law, Comparative Financial Law, Modern Contract Law, Modern financial Trade Law</li> <li>• Major Subjects (Area of information technologies and companies): Intellectual Property Law and Information Products, Electronic Society and Law, Modern Intellectual Property Law, Business Know-how and Employment Relations, Intellectual Property Law in US and Europe, Intellectual Property Law in US, Intellectual Property in Comparative Law, Modern problems in Intellectual Property Law, Comparative Law of Intellectual Property</li> <li>• Major Subjects (Area of social and economic law): Basics of Comparative Labor and Employment Law, Basics of Comparative Labor and Employment Law II, Modern Social Security Law</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Under the supervision and advice of supervisory faculty members, students take Major Subjects necessary for the writing of doctoral dissertation.</li> <li>• Students learn the extensive specialized knowledge and ability to be necessary as Doctor in the areas of law based on their interests and concerns.</li> <li>• In the aspects of research supervision, students systematically learn to carry out research activities in stages which include research plan, mid-term presentation (multiple times in some cases), preliminary review and final exam.</li> </ul> <p>Depending on the theme, students gain diversified thinking ability through a system of supervision by more than one faculty member.</p>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The requirements that should be achieved in each stage of research plan, mid-term presentation (multiple times in some cases), preliminary review and final exam are clarified and the achievements are evaluated through the presentations and question-and-answer sessions at the time of mid-term presentation and preliminary review board.</li> </ul>

## Admission Policy

Desired students	<p>The Program seeks human resources potential to be highly specialized professionals who have comprehensive and advanced judgment ability to present appropriate solutions as to new types of legal problems faced by companies and society, and also potential to be researchers who can effectively take advantage of such experience.</p>
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Selection policy

Candidates are evaluated with the following items, and with their corresponding abilities included, a comprehensive evaluation is made.

- Research plan, thesis review (master's thesis or equivalent academic paper): Research task setup ability, planning ability, specialized knowledge and abilities such as logical thinking
- Written exam (foreign language, specialized subjects **【law】**): Ability to grasp the outline of legal text in a foreign language in a relatively short time. Specialized legal knowledge and discussion ability.
- Oral exam: Motivation to research, ability related to specialized knowledge, communication ability



## Doctoral Program in Business Administration

Name of the degree to be conferred	Doctor of Philosophy in Business Administration
Educational purpose	To respond to the social demand for the development and re-education of highly specialized professionals, the Doctoral Program in Business Administration develops highly specialized professionals who have comprehensive and advanced judgment ability based on the advanced specialized knowledge in business administration and objective management data analysis ability and thereby can present appropriate solutions as to new types of problems faced by companies and society, as well as researchers with international character who can effectively take advantage of such experience.
Vision of human resources development	He or she should possess specialized knowledge appropriate to the doctoral (business administration) degree, and have the ability to detect problems, the conception ability and other abilities such as logical thinking, as well as the inspiration for solving challenges and the communication ability enabling sufficient debates.

### Diploma Policy

The degree of Doctor of Philosophy in Business Administration is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Ability to carry out management research: Advanced specialized knowledge about business administration and the ability to carry out research from a business administration points of view and based on objectively conducted qualitative and quantitative analysis as a highly specialized professional	① If a long-term research plan is drawn up for important tasks based on specialized knowledge ② If a research plan is independently and appropriately executed

7. Evidence base analysis ability for Management competence to conduct analysis using qualitative and quantitative data objectively taken for problem analysis from multifunctional points of view included in the areas of business administration and based on advanced specialized knowledge	① If objective facts are collected for important tasks ② If analysis is conducted based on collected objective facts
8. Problem solving ability for Management competence to present solutions by building a management analysis model for problem solving that combines multifunctional measures included in the areas of business administration and advanced specialized knowledge	① If the theory of the quantitative or qualitative analysis methodology is understood and appropriately applied ② If obtained results are interpreted into one's own words to debate with others
9. Ability to convey management knowledge: Ability to appropriately convey and develop advanced specialized knowledge and research findings in the areas of business administration whether in academic or working-level scenes	① If a rational description of the nature of specialized knowledge is provided ② If the nature of specialized knowledge is shared with others
10. Ability to bequeath management knowledge: Ability to pass down one's own findings, and the advanced specialized knowledge and research outcomes in the areas of business administration to help potential younger talents inherit and develop them	① If the nature of specialized knowledge is understood ② If specialized knowledge is used and reflected in research

#### Dissertation evaluation criteria

Evaluation requires the approval of the dissertation review board members formed by one chief reviewer and four or more sub-reviewers (including one or more reviewer who is not a full-time faculty member of the base organization setting up the dissertation review board).

Evaluation items

1. Significance of research tasks
2. Comprehensive understanding and grasping of preceding researches inside and outside Japan
3. Precise presentation of research method, and its appropriateness
4. Appropriateness and significance of demonstration method and conclusion
5. Format and style of presentation of dissertation

In the dissertation review and the final exam, the dissertation for degree grant, which contains the above evaluation items, is evaluated and judged if it is acceptable from the perspectives of degree dissertation levels.

## Curriculum Policy

The Program is designed to provide students with systematic curriculum which is not unbalanced to either theory or practice and pays appropriate attention to cultivate a breadth of basic skills in associated areas with this major, and the big picture in mind in business, humanities and society as well as the generic knowledge and ability that support students to be active in diverse social scenes, along with more advanced specialized knowledge and ability concerning the areas of business administration. Particularly, the Program actively provides students with opportunities to increase their understanding to the modern challenges surrounding business and science. In addition, as a night graduate school for adult members of society, the Program is formulated to be efficient and effective by the rational deployment of subjects, for example, which are principally based on the class hours of weeknights and on Saturdays.

Curriculum organization policy	<p>The Program concentrates on the management strategies and management organizations, marketing, accounting and finance that are commonly considered to be the core realms in business administration, while embracing the lecture subjects in the realms associated to mathematical science, system science and informatics typical of quantitative analysis that is important in enhancing the sophistication of the modern management. The Program is also designed to develop the abilities shown in Diploma Policy through special research and research investigation, etc. In research aspects, six stage milestones——research plan, survey dissertation, mid-term dissertation, drafting, preliminary review, final exam——are provided to help students organize their research activities. Through a system of supervision with multiple faculty members, students acquire the ability to think from various perspectives.</p> <ul style="list-style-type: none"> <li>• The ability to carry out research, the evidence base analysis ability and problem solving ability are acquired with “Fundamentals in Strategic Management” and other Major Subjects.</li> <li>• The ability to convey management knowledge and to bequeath management knowledge in addition to the ability to carry out research, evidence base analysis ability and problem solving ability are acquired with “Advanced Seminar in Business Management”, etc. in the research subjects.</li> <li>• In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student’s major at the core, students are encouraged to take one credit from Degree Programs’ Common Courses, Inter-disciplinary Foundation Courses, Graduate General Education Courses.</li> <li>• With research supervision, students acquire the ability to carry out research, evidence base analysis ability and problem solving ability as well as the ability to convey and bequeath knowledge.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Under the supervision and advice of supervisory faculty members, students take the Major Subjects necessary for driving the doctoral dissertation research forward.</li> <li>• Students learn the extensive specialized knowledge and ability to be necessary as Doctor in the areas of business administration based on their interests and concerns.</li> <li>• In research supervision aspects, six stage milestones——research plan, survey dissertation, mid-term dissertation, drafting, preliminary review, final exam——are provided to help students organize their research activities.</li> </ul> <p>Through a system of supervision with multiple faculty members, students acquire the ability to think from various perspectives.</p>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The requirements that should be achieved in each stage of research plan, survey dissertation, mid-term dissertation, drafting, preliminary review and final exam are clarified and the achievements are evaluated through the presentations and question-and-answer sessions at the time of the research presentation and review board.</li> <li>• As a system of evaluation, the achievements of the research plan, survey dissertation, mid-term dissertation and drafting are evaluated by the review board. In the preliminary review, the preliminary reviewers (not disclosed) appointed by the dissertation supervision board read the dissertation draft to review. Then, the dissertation review board implements the final exam.</li> </ul>

## Admission Policy

Desired students	To carry out doctoral dissertation research rooted in the awareness of business problems as adult members of society, the Program seeks human resources who have a strong interest in advanced academic approaches in the areas of modern business administration and have specialized knowledge and ability. In the process of planning and carrying out research, students are required to keep an active attitude to investigate and think on their own and have broad interests beyond one's business operations in change or the realms of expertise.
Selection policy	<p>Candidates are comprehensively evaluated with the following evaluations.</p> <ul style="list-style-type: none"><li>• Submitted thesis and research plan: Objectives of research, appropriateness of research method, the usefulness, novelty and sentence expressiveness of research</li><li>• Foreign language exam (Substituted by TOEIC): Communication ability in English</li><li>• Interview: Presentation ability, motivation for research, discussion ability</li></ul>

## Law School Program

Name of the degree to be conferred	Juris Doctor
Educational purpose	<p>The Law School Program cultivates legal professionals to meet all of the following four characteristics.</p> <ul style="list-style-type: none"> <li>• Capable of putting the knowledge, experience and skills already gained as an adult member of society into the actual work of legal profession</li> <li>• Well-rounded human nature and perception as well as high ethics as a legal professional</li> <li>• Ability to apply specialized legal knowledge to concrete dispute solution and solve new problems flexibly with the appraisal of existing ideas</li> <li>• Capable of contributing to social development with a sufficient understanding of leading-edge legal areas</li> </ul>
Vision of human resources development	<p>Specifically, the Program cultivates legal professionals as mainly described below (any of them depending on the backgrounds and goals of individuals), while, whether in any case, the knowledge, experience and skills owned by adult members of society are utilized.</p> <ul style="list-style-type: none"> <li>• Human resources to whom the civilian population can easily access to solve legal disputes such as general civil or criminal cases, household disputes, illegal activities and consumer problems</li> <li>• Human resources who can use advanced specialized knowledge to plan national or municipal policy</li> <li>• Human resources such as corporate personnel in charge of legal affairs who can use advanced specialized knowledge in the leading-edge areas of law, including global business, social security law and intellectual property law</li> <li>• Human resources of well-rounded human nature backed up by social experience</li> </ul>
Diploma Policy	
<p>The degree of Juris Doctor is commenced to those who have fulfilled the requirements for the completion of the Professional degree programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.</p>	
Competencies	Evaluation perspectives
1. Legal mind: Ability as a working-level legal professional to grasp appropriately legal problems out of concrete cases and solve them	① If the basic and systematic knowledge about basic laws and the legal thinking ability were gained ② If applied and classic legal knowledge and comprehensive interpretation ability for the legal problems in relation to basic laws were gained ③ If the understanding of laws different from that for positive laws was gained
2. Awareness of mission, development of ethical view, work processing and solving: Advanced professional awareness and specialized ability to practically process and solve legal dispute cases	① If basic skills necessary for legal professionals are gained ② If the overview of lawsuits is understood through concrete problems concerning lawsuit work ③ If lawsuit work is experienced through firsthand cases or simulated trial
3. Meeting leading-edge challenges: Ability to appropriately meet leading-edge legal challenges that arise with social transition	If specialized knowledge about the leading-edge and applied areas of law is gained

## Curriculum Policy

To allow students as working adult members of society, who in reality can involve themselves in daily learning only for a very limited length of time, to effectively gain systematic knowledge of law, the Program offers systematic and repetitive education with the adoption of a three-stage system of subjects for the basic legal subjects that especially demand systematic knowledge. With this, students seek to complete the acquisition of specialized legal knowledge, thinking ability, analytical ability, expressive ability, etc. that are necessary for actual work as legal professionals.

### Curriculum organization policy

The curriculum is organized for adult members of society with working experience including those who are and who are not legal professionals passing the bar exams, so that they will be able to deliver a variety of legal services.

- With the basic legal subjects, students acquire extensive legal qualities, that is, the legal mind.
- With the practical basic legal subjects, which use concrete dispute cases as study materials, students learn the techniques for practically processing legal problems and directing themselves to resolution.
- With the legal basic/interdisciplinary subjects, students expand their horizon to a greater understanding of law from a point of view different from that for positive laws.
- With the developed/leading-edge subjects, students gain the proficiency that can work with the leading-edge legal problems arising in the actual society.

### Learning methods • Processes

- The Program includes “Course for Students without Legal Background” intended for students with no legal study background (to be completed by 3 years) and “Course for Students with Legal Background” intended for students with legal study background (to be completed by 2 years).
- The “extension system” is available to meet the need of working adult members of society who manage to work their way through school to seek to be certified as legal professionals. The use of this system permits students with no legal study background to extend the learning period to four years if the period of three years, which is the standard limit to complete the Program, is estimated to be insufficient due to their circumstances such as reasons related to their work condition. For students with legal study background, the period permitted to extend using this system is up to three years.
- For students who never have learned law in earnest before the enrollment in the Program, we also highlight introduction training such as basic seminars, etc.
- The Program is committed to structuring a system that allows working students to learn out of the classroom (on occasions of a business trip, etc.) through ICT (information and communications technology).
- To operate as a practical legal professional, students are required to have the attitude to appropriately grasp where a legal problem lies in the case in dispute through conversation with concerned parties, then determine the course of action to take for the problem, and finally enter the actual negotiation to lead the problem to resolution.

Therefore, to see whether students have acquired these capabilities, the Program places emphasis on how they react in the classes in which an interactive style is basically adopted.

### Evaluation of learning outcomes

Students must earn the total required number of credits to complete along with an attendance for three years or more for the Course for Students without Legal Background and two years or more for the Course for Students with Legal Background. In addition, to have the degree granted, students must attain a GPA of 1.50 or more in the final year. As for the promotion requirement at each academic year, a specified number or more of credits must be earned in required subjects, and the GPA must be 1.50 or more.

In addition, the students in the Course for Students without Legal Background must prove themselves in the common achievement verification exam as the promotion requirement to get promoted from the first to the second academic year.

To calculate GPA, the evaluation of each subject that the student registered to take is converted as follows: 4 evaluation points for A+, 3 evaluation points for A, 2 evaluation points for B, 1 evaluation points for C, and 0 evaluation points for D. These conversions are used to determine GPA by the multiplication with the number of credits of each subject.



As the evaluation of learning outcomes, drafting (text composition) ability is judged from the written exam of each subject, and thereby the achievement of the knowledge and abilities the Program seeks to cultivate is evaluated.

#### Admission Policy

**Desired students** He or she should be an adult member of society with working experience, etc. who wish to gain the ability to identify and logically analyze legal problems to deliver legal services in the future by linking legal knowledge and skills to the knowledge, experience and skills that they now already possess.

#### Selection policy **【Candidates with no legal study background】**

**① First exam: Written exam**

Successful candidates are selected with the score of the written (essay) exam. The written exam gives such tasks that can appropriately evaluate the candidates' ability in reading, logical thinking, analysis and discussion.

**② Second exam: Oral exam and document screening (Only for successful candidates of the first exam)**

Each candidate is separately interviewed to see if they have the qualities, noble goals and enthusiasm to be a legal professional.

Then, the acceptance of candidates (final successful candidates) is decided up to the overall evaluation including the evaluation of the oral exam, the undergraduate performance, etc. provided in the submitted application documents, remarkable linguistic qualifications, other qualifications, and the relationship between the candidate's experience as an adult member of society and the reason for wishing to learn in the Law School Program and be a legal professional.

#### **【Candidates with legal study background】**

Candidates are required to take a legal subject essay exam as the first exam (written exam) to evaluate if they are recognized as a learned individual versed in required basic knowledge of law.

The successful candidates of the first exam are decided with the score of the written exam (legal subject essay exam), and they are placed to take the second exam (oral exam and document screening) to select final successful candidates as is the case with candidates of no legal study background.

## MBA Program in International Business

Name of the degree to be conferred	Master of International Business Administration
Educational purpose	The MBA Program in International Business cultivates management professionals who, as “highly specialized professionals”, understand the international society and cultural diversity and possess the knowledge, skills and qualities that can direct them to appropriate actions conforming to changing business circumstances. The Program especially seeks to cultivate the following three types of global leaders: business managers who possess the core management competences, country managers who excel in international adaptability, and project managers who excel in applied information skills.
Vision of human resources development	We seek working adult members of society who are culturally sensitive and so proficient in English as to make communication emerge in the Program’s highly diverse learning environment, possess proactive problem awareness and a pattern of autonomy, and seek to have a career active as a human resource of central management at the international headquarters or local business site or in cross-regional projects in a for-profit or non-profit global organization in the future.

### Diploma Policy

The degree of Master of International Business Administration is commenced to those who have fulfilled the requirements for the completion of the Professional degree programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Diversity acceptance ability: Ability to consider different perspectives, carefully listen to different opinions and thereby take various possibilities into account	① If one understands the thoughts or perspectives of those who belong to different realms such as different cultures, industries and job duties ② If the possibility of problem solving is extended with the acceptance of various different views
2. Achieving ability: Ability to search for a means to achieve tasks in a situation where they are highly uncertain and difficult to solve	① If problems, even when they are of high uncertainty, are appropriately recognized and solutions are found ② If goals are achieved by taking the initiative to proactively make actions even under difficult situations
3. Foreseeing ability: Ability to foresee present and future factors that have effects on the problems one should solve	① If various factors that may have effects on the future are appropriately grasped, understood and sorted ② If capable of forming new ideas for the creation of social value with a long-term view
4. Information collection ability: Ability to efficiently collect high quality information necessary for decision making	① If information to be necessary for the correct decision making is identified ② If necessary information is collected effectively and efficiently using diverse means
5. Creative ability: Ability to combine existing concepts or address problems based on new ideas	① If the importance of creating new knowledge and value and the methodology for it are understood ② If social contribution through new knowledge creation is expected
6. Analytical thinking ability: Ability to carry out analysis with the selection of applicable information and techniques for solving challenges	① If logical thinking method is understood and used ② If capable of solving actual social problems by applying logical thinking ability

7. Strategic planning ability: Ability to consider multiple evaluation scales and thereby create measures expected to highly pay off	① If problems faced by the society, companies, etc. are appropriately grasped from a multifunctional standpoint or viewpoint ② If the way the society, companies, etc. should be is set and the road map to it is provided
8. Organizational management ability: Ability to achieve the goals of a managing department with consideration for the allocation of given management resources and the awareness of personnel members	① If capable of understanding various forms of organization existing in the society and their nature ② If capable of managing organizations appropriately with the comprehension of organizational behavior and management and leadership
9. Communication ability: Ability to eliminate ambiguous conditions in communication and acquire support and understanding from relevant persons	① If appropriate communication necessary for making various business operations proceed smoothly is made ② If mutual understanding is promoted and the initiative is taken to proactively communicate oneself to achieve goals
10. Risk management ability: Ability to objectively grasp the probabilities of risk occurrences and their effects and take appropriate actions when they occur	① If capable of grasping potential risk factors latent in the society, companies, etc. ② If, in time of crisis, situations are grasped, instructions are given and actions are taken appropriately

## Curriculum Policy

To achieve the Program's education goals and provide an education program appropriate to an internationally competitive professional graduate school, the following three concrete education policies are set up.

The first education policy is to train students to have the skill to make quick and appropriate decisions in rapidly changing international management by way of interrelating and complementing the education among the five realms ("business strategic realm", "organizational management realm", "international action realm", "applied information realm", "common realm") that the Program has established in association with new management circumstances.

The second education policy is to offer broad subject groups in the five education realms and thereby meet the need for a variety of career plans of the students who will complete the Program with the goal of becoming international management professionals, and this is how the Program helps students have the spirit of proactively planning a career and making moves to achieve it.

The third education policy is to cultivate the practical ability to carry out job duties as international management professionals through the hands-on subjects inside and outside Japan to help students possess the ability under international management circumstances and also exert the ability effectively at headquarters or overseas local subsidiaries.

Curriculum organization policy	<p>To provide education programs appropriate to an internationally competitive professional graduate school, the Program's curriculum is organized to feature four distinctive characteristics in language, lectures and hands-on training.</p> <ul style="list-style-type: none"> <li>• Required subjects, elective subjects, seminar subjects, and business projects are set up. With these, students acquire the ten competences shown in Diploma policy.</li> <li>• Lectures, which incorporate theory and practice, are taught by professional practitioners or specialized researchers who are active in international business realms. With these, students acquire diversity acceptance ability, foreseeing ability and communication ability.</li> <li>• In the final semester, students work on a business project, which integrates the knowledge and skills acquired in lecture subjects to reflect them in actual practice. From the following programs, students can select one that meets each personal need: ① In-company project, ② Internship in Japan, ③ Overseas internship, ④ Research report, ⑤ Business plan development. With this business project, students acquire the creative ability, strategic planning ability, achieving ability, information collection ability, analytical thinking ability, etc.</li> </ul>
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	<ul style="list-style-type: none"> <li>• The Program is based on an education method which encourages students to make use of their learned knowledge (debates, group work, simulations) in the Program's highly diverse and international learning environment where about one fourth of the students come from overseas countries and also Japanese students who have a degree in overseas universities are intermingled.</li> </ul> <p>In addition, the Program also has short overseas training programs of a week or so to help working students participate with ease. With these educational trainings, students acquire the organizational management ability, communication ability, risk management ability, etc.</p>
Learning methods · Processes	<ul style="list-style-type: none"> <li>• Students take required subjects, elective subjects and seminar subjects under the advice of multiple supervisory faculty members.</li> <li>• To support students' systematic learning so that they can more practically apply the theory that they have learned in lectures and seminars and can develop it into knowledge and skills that can be applied at worksites, the Program sets up the "Preliminary Report/Presentation" and "Interim Report/Presentation" milestones starting from when students are in the seminar stage. In addition, students carry out a business project as hands-on training under the advice of multiple supervisory faculty members during the semester term to complete the Program.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• As the standard learning of two years, students are evaluated with 32 credits of lecture subjects (8 credits of required subjects and 24 credits of elective subjects) and 5 credits of seminar subjects.</li> <li>• Those who have passed "Preliminary Report/Presentation" and "Interim Report/Presentation", have taken 32 credits of lecture subjects and 5 credits of seminar subjects, and have an average GPA score of 3.0 or more can be advanced to "Business Project (8 credits)", which is the final requirement.</li> <li>• In the business project, students make the final presentation after submitting the final report. Then, after going through a question-and-answer session, the result is evaluated in the evaluation meeting in which all of the full-time faculty members of the major participate.</li> <li>• To meet the diploma requirements, students must pass the final report and final presentation, which are graded in the evaluation meeting, and have the final average GPA score of 3.0 or more.</li> </ul>
Admission Policy	
Desired students	<p>We seek working adult members of society (or those who have working experience) who</p> <p>① are culturally sensitive and so proficient in English as to make communication emerge in the Program's highly diverse learning environment, ② possess proactive problem awareness and a pattern of autonomy, and ③ seek to have a career active as a human resource of central management at the international headquarters or local business site or in cross-regional projects in a for-profit or non-profit global organization in the future.</p>
Selection policy	<p>Candidates are comprehensively evaluated based on the examination of submitted application documents, an examination of English proficiency and an oral exam.</p> <ul style="list-style-type: none"> <li>• First stage selection: The examination of submitted application documents and an examination of English proficiency require the submission of the application form in the specified format, an essay describing the plan for the business project training, etc., the official transcript and recommendation letter of the university from which the candidate graduated, etc.</li> <li>• Second stage selection: Oral exam (only successful candidates of the first stage selection). The oral exam evaluates the candidate's job experience, the motive for applying for the Program, the analytical and communication skills, future visions, etc.</li> </ul>

# Graduate School of Science and Technology

## Degree Programs in Pure and Applied Sciences

Master's Program in Mathematics

Master's Program in Physics

Master's Program in Chemistry

Master's Program in Engineering Sciences

Subprogram in Applied Physics

Subprogram in Materials Science

Master's Program in Materials Innovation

Doctoral Program in Mathematics

Doctoral Program in Physics

Doctoral Program in Chemistry

Doctoral Program in Engineering Sciences

Subprogram in Applied Physics

Subprogram in Materials Science

Subprogram in Materials Science and Engineering

Doctoral Program in Materials Innovation

## Degree Programs in Systems and Information Engineering

Master's Program in Policy and Planning Sciences

Master's Program in Service Engineering

Master's Program in Risk and Resilience Engineering

Master's Program in Computer Science

Master's Program in Intelligent and Mechanical Interaction Systems

Master's Program in Engineering Mechanics and Energy

Master's Program in Life Science Innovation (Bioinformatics)

Doctoral Program in Policy and Planning Sciences

Doctoral Program in Risk and Resilience Engineering

Doctoral Program in Computer Science

Doctoral Program in Intelligent and Mechanical Interaction Systems

Doctoral Program in Engineering Mechanics and Energy

Doctoral Program in Life Science Innovation (Bioinformatics)

Doctoral Program in Empowerment Informatics

## Degree Programs in Life and Earth Sciences

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Master's Program in Biology

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Master's Program in Agro-Bioresources Science and Technology

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Master's Program in Geosciences

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Master's Program in Environmental Sciences

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Master's Program in Mountain Studies

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Master's Program in Life Science Innovation (Food Innovation)

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Master's Program in Life Science Innovation (Environmental Management)

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Master's Program in Life Science Innovation (Biomolecular Engineering)

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Doctoral Program in Biology

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Doctoral Program in Agricultural Sciences

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Subprogram in Advanced Agricultural Technology and Science cooperated with NARO

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Doctoral Program in Life and Agricultural Sciences

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Doctoral Program in Bioindustrial Sciences

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Doctoral Program in Geosciences

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Doctoral Program in Environmental Studies

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Doctoral Program in Life Science Innovation (Food Innovation)

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Doctoral Program in Life Science Innovation (Environmental Management)

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Doctoral Program in Life Science Innovation (Biomolecular Engineering)

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## Joint Master's Degree Program in Sustainability and Environmental Sciences

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## Educational purpose of Graduate School of Science and Technology

In the new interdisciplinary realms in which systems, information and society are merged and combined with the foundation and application of scientific, engineering and agricultural studies that support the overall sciences and technologies, the Graduate School of Science and Technology has been designed to cultivate researchers, university faculty members and highly specialized professionals of ingenuity and of action who can identify and solve our complex and difficult problems.

## Competences specified by the Graduate School of Science and Technology

Master's Program	1. Research ability	Basic knowledge and ability to set research tasks and carry out a research plan in the areas of science and technology
	2. Specialized knowledge	Advanced specialized knowledge and command of the areas of science and technology
	3. Ethical view	Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of science and technology
Doctoral Program	1. Research ability	Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of science and technology
	2. Specialized knowledge	Leading-edge and advanced specialized knowledge and command of the areas of science and technology
	3. Ethical view	Ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of science and technology and deep ethical knowledge about the specific area of expertise

## Degree Programs in Pure and Applied Sciences

### Educational purpose

The Degree Programs in Pure and Applied Sciences offer advanced education and research supervision concerning the foundation of pure and applied sciences and its application to science and technology to cultivate researchers, university faculty members and highly specialized professionals who have a wide perspective covering from foundation to application and outstanding research ability that can appropriately deal with the rapid changes of the modern society. To realize this education, the following Master's and Doctoral Programs are organized.

	Competences specified by the Degree Programs	Evaluation perspectives
Master's Program	1. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of pure and applied sciences	① If significant research tasks and research goals in the area of expertise are set ② If a research plan for the realization of research goals and research tasks is designed ③ If information, technical and specialized knowledge necessary to carry out a research plan are obtained and these specialized knowledge are comprehensively used
	2. Specialized knowledge: Advanced specialized knowledge and command of the areas of pure and applied sciences	① If advanced specialized knowledge in the areas of pure and applied sciences is acquired ② If the ability to apply, put into practice, and use specialized knowledge in actual research is acquired
	3. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of pure and applied sciences is acquired	① If ethical view necessary to carry out research is adopted in addition to general ethical view ② If matters with potential to develop ethical problems are understood and knowledge to address these is acquired
Doctoral Program	1. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of pure and applied sciences	① If important and significant research tasks and research goals in the area of expertise are set ② If a research plan for the realization of research goals and research tasks is designed ③ If information, technical and specialized knowledge necessary to carry out a research plan are obtained and these advanced knowledge are comprehensively used
	2. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of pure and applied sciences	① If advanced and leading-edge specialized knowledge in the areas of pure and applied sciences is acquired ② If high ability to apply, put into practice, and use specialized knowledge in actual research is acquired



Doctoral Program	<div>3. Ethical view: Ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of pure and applied sciences and deep ethical knowledge about the specific area of expertise</div> <div><div>① If high ethical view necessary to carry out research is adopted in addition to general ethical view</div><div>② If matters with potential to develop ethical problems are understood and advanced knowledge to address these is acquired</div></div>
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# Degree Programs in Systems and Information Engineering

## Educational purpose

The Degree Programs in Systems and Information Engineering cultivate researchers, university faculty members and highly specialized professionals who possess the ability to see from a higher global perspective and the diverse and flexible thinking ability in the interdisciplinary realms in which systems, information and society are merged and combined, as well as the ingenuity and inspiration to solve the complex and difficult problems in the real world under their leadership.

	Competences specified by the Degree Programs	Evaluation perspectives
Master's Program	1. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of systems and information engineering	① If research tasks in the areas of systems and information engineering were appropriately set ② If there are basic skills to conduct research in the areas of systems and information engineering ③ If substantial findings were achieved by carrying out research in the areas of systems and information engineering
	2. Specialized knowledge: Advanced specialized knowledge and command of the areas of systems and information engineering	① If basic specialized knowledge in the areas of systems and information engineering is retained ② If advanced specialized knowledge in specific areas of systems and information engineering is gained and command is possessed
	3. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the area of engineering	① If researcher ethics and technician ethics were understood and observed
Doctoral Program	1. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of systems and information engineering	① If leading-edge research tasks in the areas of systems and information engineering were appropriately set and there are advanced skills to conduct the research ② If original findings were achieved by carrying out leading-edge research in the areas of systems and information engineering
	2. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of systems and information engineering	① If specialized knowledge in the areas of systems and information engineering is extensively retained ② If leading-edge and advanced specialized knowledge in specific areas of systems and information engineering is gained and put into practice for research and problem solution

Doctoral  
Program

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3. Ethical view: Ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the area of engineering and deep ethical knowledge about the specific area of expertise

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- ① If researcher ethics and technician ethics were understood and observed  
② If procedures about researcher ethics and technician ethics necessary at the time of research were fully understood

## Degree Programs in Life and Earth Sciences

### Educational purpose

The Degree Programs in Life and Earth Sciences cultivate researchers, university faculty members and highly specialized professionals who possess deep knowledge, research ability and research skill in the field of specialization in life science, geoscience or agricultural or environmental science, and on the other side, can see the life and human, and their foundations which are the earth, nature and society that surround them from a broad point of view, and also have the ingenious inspiration to find research tasks and the ability to solve them. To realize this education, the following Master's and Doctoral Programs are organized.

	Competences specified by the Degree Programs	Evaluation perspectives
Master's Program	1. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of life and earth sciences	If new research tasks using specialized knowledge gained in the areas of life and earth sciences are set If basic knowledge to carry out the research plan was acquired
	2. Specialized knowledge: Advanced specialized knowledge and command of the areas of life and earth sciences	If advanced specialized knowledge in the areas of life and earth sciences was gained If capable of putting the specialized knowledge into practice
	3. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of life and earth sciences	Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of life and earth sciences were gained
Doctoral Program	1. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of life and earth sciences	If leading-edge research tasks using up-to-date specialized knowledge gained in the areas of life and earth sciences are set If basic knowledge to carry out the research plan independently was acquired
	2. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of life and earth sciences	If leading-edge and advanced specialized knowledge in the areas of life and earth sciences was gained If capable of putting the specialized knowledge into practice
	3. Ethical view: Ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of life and earth sciences and deep ethical knowledge about the specific area of expertise	Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of life and earth sciences were gained



## Master's Program in Mathematics

Name of the degree to be conferred	Master of Science
Educational purpose	The Master's Program in Mathematics cultivates researchers who have a wide perspective covering from pure to applied mathematics, educators or instructors who are sufficiently skilled in mathematics to play a role in the education industry, and highly specialized professionals, etc. who can use their mathematical science abilities to the full on the social front.
Vision of human resources development	He or she should have a wide perspective necessary for being a researcher and be sufficiently skilled in mathematics to play a role in the education industry, and possess mathematical science abilities sufficient to be active on the social front as a highly specialized professional.
Diploma Policy	
The degree of Master of Science is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Mathematical analysis ability: Ability to see the nature of issues from a wide mathematical perspective and analyze them mathematically	① If the basic understanding of problems in various research realms was gained ② If a good command of basic mathematical knowledge was gained
7. Ability to carry out mathematical research: Ability to carry out research while setting up research tasks based on advanced knowledge	① If problems are identified based on the advanced knowledge in one's own area of expertise ② If research is carried out while its tasks are worked on in a systematic manner
8. Ability to solve mathematical tasks: Ability to work on tasks from a wide perspective and by using advanced mathematical knowledge	① If the use of advanced mathematical knowledge is actively tried ② If capable of seeing problems from multiple perspectives and solving them

9. Mathematical pursuit ability: Ability to work on issues from a mathematical viewpoint and pursue mathematical principles behind those issues	① If the pursuit of mathematical principles as the nature of issues is actively tried to gain new findings ② If aware of social contribution activities through mathematics
10. Mathematical expressiveness: Communication ability to debate with those from different areas and not just one's own area	① If linguistic skill necessary for smooth communication was gained ② If the ability to explain and understand was gained to debate with those from different areas and not just one's own area

#### Dissertation evaluation criteria

##### 【Review board members】

Structure of thesis review board

Set up with one chief reviewer and two or more sub-reviewers.

##### 【Review method】

The thesis review board administers thesis review and final exam.

##### 【Review items】

1. The research theme must be clearly indicated with the presence of academic significance.
2. The preceding researches associated with the research theme must be appropriately presented.
3. The line of reasoning to reach the conclusion must be provided logically and clearly.
4. The line of reasoning and conclusion of the degree thesis must have novelty or ingenuity and be an academic contribution with contents that open up new findings in the area or a review article containing the student's view.
5. The thesis must have appropriate sentence expressions and thesis construction as a degree thesis.

##### 【Level standards required for the degree thesis】

A thesis for degree grant meeting all of the above evaluation items passes as a master's thesis after the final exam is included in the judgment.

#### Curriculum Policy

To develop diverse human resources, the Program adopts the system of education and research supervision formed by the four areas of algebra, geometry, analysis and mathematics of information. The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in pure and applied sciences and to have the big picture in mind in natural science extending to science and technology and to engineering as well as the generic knowledge and ability that support students to be active in diverse social scenes, along with the research ability, specialized knowledge and ethical view in each area.

Curriculum organization policy	<p>The Program offers plenty of General Foundation Subjects, careful Major Subjects, and seminars according to each student's ability in their own area of expertise, so that they can develop a broad perspective ranging from the foundation of modern mathematics to its application to each area of the sciences and up to the leading-edge areas of modern mathematics. The research carried out under the advice of faculty members helps students develop the fundamental and applied abilities appropriate to a master's degree in science to grow to be a human resource active in the society through science. In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, Colloquium on Pure and Applied Sciences (1 credit) must be taken as a required subject from Degree Programs' Common Courses, and students are encouraged to take other Degree Programs' Common Courses, Inter-disciplinary Foundation Courses and Graduate General Education Courses. The research supervision takes a multiple-instruction scheme to develop a research ability that exerts multifaceted perspectives.</p> <ul style="list-style-type: none"> <li>• With Introduction to Algebra I, Introduction to Algebra II, Special Lecture on Algebra I, Algebra I and Algebra II, students gain the ability to extract algebraic structures in mathematical problems.</li> <li>• With Introduction to Geometry I, Introduction to Geometry II, Special Lecture on Geometry I, Geometry I and Geometry II, students gain the ability to geometrically grasp mathematical problems.</li> </ul>
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	<ul style="list-style-type: none"> <li>• With Introduction to Analysis I, Introduction to Analysis II, Special Lecture on Analysis I, Analysis I, Analysis II and Stochastic Analysis, students gain the ability to analyze mathematical problems in the discipline of analysis.</li> <li>• With Introduction to Mathematics of Information I, Introduction to Mathematics of Information II, Special Lecture on Mathematics of Information I, Mathematical Logic, Mathematical Statistics and Computer Mathematics, students gain the ability to view mathematical problems from the aspect of mathematics of information.</li> <li>• With Internship in Mathematics I, Internship in Mathematics II and Frontiers of Mathematics, students gain the fundamental abilities for forming their future career paths.</li> <li>• With the Research IA, Research IB, Research IIA and Research IIB in the area, students develop the fundamental and applied abilities appropriate to a master's degree in science to gain presentation and communication abilities.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• The presentations of research plan and research outcomes are opened when each academic year finishes, and thereby quality supervision is provided to enrich education and further promote research.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Foundation Subjects for Major: Whether the fundamental abilities appropriate to a master's degree in science were gained for mathematics is evaluated with the confirmation of credits earned.</li> <li>• Foundations in associated areas: Whether the fundamental abilities appropriate to a master's degree in science were gained for the associated areas is evaluated with the confirmation of credits earned and an oral exam.</li> <li>• Wide perspective: Whether a wide perspective appropriate to a master's degree in science was gained is evaluated with the interview at the time of the presentations.</li> <li>• Presentation and communication abilities: Whether the presentation and communication abilities appropriate to a master's degree in science were gained is evaluated by the interview at the time of the presentations.</li> <li>• Academic outcomes: Whether academic research outcomes appropriate to a master's degree in science were accomplished is evaluated by thesis review. The achievements in these items are evaluated as the final examination which is administered with the review of degree thesis and the final exam.</li> </ul>
Admission Policy	
Desired students	<p>We seek candidates those who possess mathematical knowledge as equivalent to a university graduate, have the great interest and motivation to learn further advanced mathematics and the motivation to conduct research on modern mathematics and pursue to draw on their mathematical research experiences and abilities in the future to become a “researcher”, “educator” or “highly specialized professional”.</p>
Selection policy	<p>Candidates must have mathematical comprehension as equivalent to a university graduate and English proficiency necessary for carrying out mathematical research. The recommendation entrance exam places emphasis on the activities that the candidate has been engaged so far in the areas of mathematics and also the aspiration and research plan that the candidate wishes to achieve after admitted.</p>

## Master's Program in Physics

Name of the degree to be conferred	Master of Science
Educational purpose	The Master's Program in Physics cultivates human resources who have the specialized knowledge and a wide perspective in physics, which is the foundation of natural science, as well as the fundamental abilities to perform research in areas associated with physics and also possess the flexible ability to apply their expertise to assume a role in highly specialized professions.
Vision of human resources development	<p>He or she should possess not only the qualities in physics but also the knowledge about the areas of associated disciplines and also the ability to scientifically challenge and break through problems that should be elucidated and solved and thereby can independently drive forward research in the Doctoral Program.</p> <p>In the course of the history of the universe, the Program adopts a system of education that crosses over international research bases based on the viewpoint of seeing the disciplinary areas of particle physics, nuclear physics and physical cosmology as the evolution processes of the universe. We thereby seek human resources who possess the interdisciplinary ability to involve all these areas along with a high level of expertise and are capable of being internationally active concerning the history of the universe.</p> <p>In the course of accelerator science, he or she should be capable of being active in this field in the future, through the research and next-generation accelerator development using the B-factory, J-PARC and accelerator-based synchrotron radiation science research facility of High Energy Accelerator Research Organization, etc.</p> <p>In the course of synchrotron radiation materials science, he or she should gain knowledge and skill in both areas of synchrotron radiation, etc. in addition to materials science through the research utilizing synchrotron radiation facilities (for example, PF, J-PARC, SPring-8 and overseas facilities), etc. and be capable of promoting materials development at synchrotron radiation facilities or private sector companies.</p>
Diploma Policy	

The degree of Master of Science is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?

5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Application ability: Fundamental abilities to put physical knowledge into use for human society development by identifying a universal structure in the natural setting	① If the relationship between physics and society is considered on the basis of wide knowledge in the areas of physics ② If one can imagine an example of using the knowledge in their own area of expertise to contribute to the society
7. Physical ability: Leading-edge scholarly knowledge and the ability to debate and conduct joint research with researchers inside and outside Japan	① If the basic specialized knowledge in the areas of physics was gained and physical phenomena are addressed with logical thinking ② If the specialized knowledge in one's own area of research was gained and research is thereby driven forward
8. Information provision ability: Ability to provide a clear description of one's research to those from different areas and not just one's own area	① If the academic importance of one's own research is explained ② If a description of concepts peculiar to physics is made clear to those from different areas and not just one's own area
9. Logical ability: Dedication to duty and logicity as a scientist	① If one is enthusiastic about searching for natural truth ② If one's commitment to research is scientific and sincere

#### Dissertation evaluation criteria

##### 【Review board members】

Structure of thesis review board

Set up with one chief reviewer and two or more sub-reviewers.

##### 【Review method】

The thesis review board administers thesis review and final exam. The final exam includes the evaluation of the ability for presenting one's research content to those from different areas and not just one's own area.

##### 【Review items】

1. Grasping and understanding of preceding researches associated with one's research content, and the appropriate appraisal and citation of their literature and materials
2. Clear presentation of the backgrounds, purposes and methods of the research
3. Reproducibility of obtained results, or verifiability by third parties
4. Unequivocal thesis construction, and appropriate development of line of reasoning before reaching the conclusion

##### 【Level standards required for the degree thesis】

With the adherence to research ethics, all of the above evaluation items must be met. The thesis passes as a master's thesis with the above requirements and the final exam included in the judgment.

#### Curriculum Policy

The Program consists of a total of ten areas of expertise, which are theoretical particle physics, experimental particle physics, cosmology, observational cosmology, theoretical nuclear physics, experimental nuclear physics, theoretical condensed matter physics, experimental condensed matter physics, biophysics, and plasma physics, and a total of three realms, which are the history of the universe, accelerator science, and synchrotron radiation materials science.

The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in pure and applied sciences and to have the big picture in mind in science and technology, which extends over natural science and engineering, as well as the generic knowledge and ability that support students to be active in diverse social scenes, along with the research ability, specialized knowledge and ethics in each area of expertise.

Curriculum organization policy	<p>In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, Colloquium on Pure and Applied Sciences (1 credit) must be taken as a required subject from Degree Programs' Common Courses, and students are encouraged to take other Degree Programs' Common Courses, Inter-disciplinary Foundation Courses and Graduate General Education Courses. The research supervision takes a multiple-instruction scheme to develop a research ability that exerts multifaceted perspectives.</p> <ul style="list-style-type: none"> <li>• Students belong to their respective area of specialty and thereby gain a high level of expertise.</li> <li>• In the areas of particle physics, nuclear physics and astrophysics, the course of the history of the universe is organized for a system of education crossing over international research bases. In the areas of condensed matter physics, the Program organizes the course of synchrotron radiation materials science, where students can acquire the knowledge and skill in synchrotron radiation application which serves as a powerful technique for the search in materials science, through the cooperation of Japan Synchrotron Radiation Research Institute and Photon Factory. In addition, the course of accelerator science is organized through the education and research tie-up with High Energy Accelerator Research Organization.</li> <li>• Since physics is the foundation of natural science, the Program in Physics is deeply interrelated in research and education with other Programs of Graduate School, and research centers (Center for Computational Science, Tomonaga Center for the History of the Universe, Tsukuba Research Center for Energy Materials Science, Plasma Research Center, etc.) as well as major research institutes inside and outside Japan. Taking advantage of this characteristic, the Program provides various education programs, including the Cooperative Graduate School System (National Institutes for Quantum and Radiological Science and Technology, National Institute of Advanced Industrial Science and Technology, National Institute for Materials Science, RIKEN, NTT, NEC, etc.) and Tsukuba Resonance Education Program.</li> <li>• By taking special research subjects of each area, students acquire a wide perspective, and through the deepening of each one's original research theme, develop fundamental and applied abilities and fortitude as a researcher.</li> <li>• Students acquire practical abilities with information provision/communication ability development subjects in Graduate General Education Courses.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students widely learn the foundation of physics with Foundation Subjects for Major and gain advanced specialized knowledge in each area with Major Subjects.</li> <li>• "Physics Seminar", in which students learn the latest topics of particularly extensive modern physics, is placed as a required subject.</li> <li>• Taking seminar and special research subjects of each area, students learn in the leading-edge research setting of their respective area of specialty under the close supervision of faculty members to deepen the scholarly knowledge of the area and carry out their research for a degree thesis.</li> <li>• In addition to the subjects of specialty, students take Graduate General Education Courses and Degree Programs' Common Courses to acquire communication ability, etc.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Foundation Subjects for Major / Major Subjects: Whether knowledge necessary for carrying out research was gained is evaluated with exams, reports, etc.</li> <li>• Special research and seminar: In special research and seminar subjects, etc., students are evaluated for the achievements as to specialized knowledge, foundations in associated areas, wide perspective, presentation and communication abilities, international compatibility, academic outcomes and all other evaluation items through the experience of attending a special interest group, academic conference, international conference, etc. in addition to routine activities such as seminars, debates and literature introduction.</li> <li>• Review of degree thesis: In the thesis presentation and oral exam at the review of degree thesis, students are evaluated for the achievements as to presentation and communication abilities, international compatibility, academic outcomes and other evaluation items.</li> </ul>



## Admission Policy

Desired students	We seek candidates who have bachelor's degree level skills in physics and its associated scientific areas and English proficiency, have the great interest and motivation to conduct leading-edge research in the areas of physics and pursue to be a researcher in academia and industry.
Selection policy	<ul style="list-style-type: none"><li>• Candidates are selected through written and oral exams.</li><li>• In the general entrance exam, candidates must have physical comprehension and basic mathematical comprehension as equivalent to a university graduate and English proficiency necessary for carrying out physical research.</li><li>• The recommendation entrance exam places emphasis on the activities that the candidate has been engaged so far in the areas of physics and also the aspiration and research plan that the candidate wishes to achieve after admitted.</li></ul>

## Master's Program in Chemistry

Name of the degree to be conferred	Master of Science
Educational purpose	Chemistry is a discipline that elucidates the structure and reaction of materials at the electron and molecular level to deepen the understanding of natural phenomena and that researches the fabrication of new materials and the expression of their new functionalities. The Master's Program in Chemistry is designed to cultivate human resources who can make the most of their ingenuity from a global view in this area. Particularly, the Master's Program cultivates those who will be a pillar of research in various areas associated with chemistry as highly specialized professionals.
Vision of human resources development	He or she should have the clear intention and sincere attitude to contribute to the world through chemistry, and the ability to seek to solve problems by research that is contributory to social development, as well as communication ability and linguistic skill capable of negotiating in the international society.

### Diploma Policy

The degree of Master of Science is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Specialized chemical knowledge: Theoretical and practical knowledge about physical chemistry, organic chemistry and inorganic/analytical chemistry, and the ability to put it into use in actual research scenes	If theoretical and practical knowledge about physical chemistry, organic chemistry and inorganic/analytical chemistry, and the ability to put it into use in actual research scenes were gained
7. Logical thinking and problem-solving ability: Ability to analyze and solve problems by logical thinking	If the ability to analyze and solve problems by logical thinking was gained

8. English proficiency specialized in chemistry: Ability to use English in carrying out a presentation and question-and-answer session and writing a paper as to chemical research	If the ability to use English in carrying out a presentation and question-and-answer session and writing a paper as to chemical research was gained
9. Ability to drive research forward: Ability to set up research tasks and draw up long-term and short-term research plan	If the ability to set up research tasks and draw up long-term and short-term research plan was gained
10. Research ethical view of good quality: Ability to appropriately handle and store research data and to appropriately cite other researchers' findings	If research data are appropriately handled and stored and if other researchers' findings are appropriately cited

#### Dissertation evaluation criteria

##### 【Review board members】

A thesis review board, which is set up with a chief reviewer (supervisory faculty member) and two sub-reviewers, is launched.

The chief and sub-reviewers must be doctor's degree holders. In addition, the chief reviewer must belong to Tsukuba (including the Cooperative Graduate School System), and the sub-reviewers, to Tsukuba (including the Cooperative Graduate School System) or a research institution approved by the professor meeting in the chemical field.

##### 【Review method】

The chief and sub-reviewers review the submitted master's thesis.

A master's thesis review board opens and arranges the oral presentation and oral exam of the master's degree candidate to evaluate the comprehension of research content and the achievement of the research. After the board finishes evaluation, the thesis reviewers have an evaluation meeting and decides on the final acceptance.

##### 【Review items】

1. The submitted master's thesis must have a high level of completeness including the description, logical development and graphics.
2. The master's thesis content must have a sufficient high level as research in the areas of chemistry.
3. The master's thesis must have references cited appropriately.
4. The master's thesis must show the sufficient contribution of the master's degree applicant.
5. Preceding researches must be deeply understood and the disciplinary position of the research theme must be clear.
6. The master's thesis content must be deeply understood and the question-and-answer session in the presentation must be carried out appropriately.

##### 【Level standards required for the degree thesis】

The thesis passes if approved to be on a master's thesis level in all criteria 1 to 5 and if approved to have an appropriate level of master's degree diploma with criterion 6 met in the presentation and oral exam in the master's thesis review board.

#### Curriculum Policy

The curriculum places four large frameworks which include the boundary areas with life sciences and engineering, etc. in addition to inorganic/analytical chemistry, physical chemistry and organic chemistry, which form the foundation of chemistry.

This system allows a research theme to involve a wide range of chemical areas. The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in pure and applied sciences and to have the big picture in mind in natural science extending to science and technology and to engineering as well as the generic knowledge and ability that support students to be active in diverse social scenes, along with the research ability, specialized knowledge and ethical view in each area.

Through this specialized research, students conduct leading-edge research to experimentally and theoretically seek to elucidate the structures and properties of various chemical substances as well as chemical reaction mechanisms, etc. at the electron and molecular level. With this, students can learn the chemical concepts covering from the foundation to application of chemical substances and also the techniques of experiment and research highly versatile in the areas in chemistry.

Curriculum organization policy	<p>In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, Colloquium on Pure and Applied Sciences (1 credit) must be taken as a required subject from Degree Programs' Common Courses, and students are encouraged to take other Degree Programs' Common Courses, Inter-disciplinary Foundation Courses and Graduate General Education Courses. The research supervision takes a multiple-instruction scheme to develop a research ability that exerts multifaceted perspectives.</p> <ul style="list-style-type: none"> <li>• The curriculum has a lineup of finely organized courses. Foundation Subjects for Major and Major Subjects help students widely learn the basic and specialized contents of chemistry to cultivate the ability to seek to solve problems. Students also take Graduate General Education Courses and Degree Programs' Common Courses to acquire communication ability and linguistic skill.</li> <li>• As for the research area of each student, students learn advanced contents under the personal attention of supervisory faculty members in charge.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• The curriculum places four large frameworks which include the combined areas with life sciences and engineering, etc. in addition to physical chemistry, inorganic/analytical chemistry and organic chemistry, which form the foundation of chemistry.</li> <li>• Through the specialized research in each area, students can learn the chemical concepts covering from the foundation to application of chemical substances and also the techniques of experiment and research highly versatile in the areas in chemistry.</li> <li>• Students widely learn the basic and specialized contents of chemistry to develop problem-solving ability and also gain communication ability and linguistic skill.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Foundation Subjects for Major: If the fundamental abilities appropriate to a master's degree in science were gained for the research area</li> <li>• Foundations in associated areas: If the fundamental abilities appropriate to a master's degree in science were gained for the areas associated with the research</li> <li>• Knowledge about problems in reality: If insight appropriate to a master's degree in science was gained as to problems in reality</li> <li>• Wide perspective: If a wide perspective appropriate to a master's degree in science was gained</li> <li>• Problem identification to solution: If the ability to identify problems in an area of specialty and lead them to concrete solutions was gained</li> <li>• Presentation and communication abilities: If the logical presentation and communication abilities appropriate to a master's degree in science were gained</li> <li>• Academic outcomes: If research outcomes appropriate to a master's degree in science were accomplished</li> </ul> <p>The achievements in these items are evaluated with written exams, report submission, oral exams and the confirmation of credits earned, and are verified and confirmed carefully at the time of thesis review and final exam. To grant a degree, these examinations need to be passed.</p>
Admission Policy	
Desired students	<p>The Program seeks those who possess the scientific skills, logical and rational thinking abilities and linguistic skill cultivated in a bachelor's program and can challenge problems persistently toward solutions. The Program, which seeks to cultivate highly specialized professionals possessing the practical ability to contribute to the society in actual research scenes on the cutting edge, welcomes those who can be actively committed to academic disciplines and research with a strong desire to learn to attain what the Program seeks.</p>
Selection policy	<ul style="list-style-type: none"> <li>• In light of Desired Students, diverse candidates who possess the qualities and abilities appropriate as potential researchers or highly specialized professionals are selected.</li> <li>• Candidates are evaluated from multifunctional and comprehensive points of view with consideration for fairness and diversity.</li> </ul>

## Master's Program in Engineering Sciences

Name of the degree to be conferred	Master of Engineering
Educational purpose	In the diverse areas of engineering which range from substances, materials, devices to measurement technologies, the Master's Program in Engineering Sciences is designed to cultivate highly specialized professionals who base themselves on their sufficient fundamental abilities in science and have the applied engineering ability and the ability to make use of it to address diverse problems in reality using supple flexibility, create original technologies and cultivate potential younger talents.
Vision of human resources development	<p>In the diverse areas of engineering which range from substances, materials, devices to measurement technologies, the Program helps students develop sufficient fundamental abilities in science and cultivates highly specialized professionals who possess the high research and development ability to contribute to the society through the Program's education and research activities by way of a system of multiple supervisory faculty members with a wide variety of values.</p> <p>&lt;Subprogram in Applied Physics&gt; Highly specialized professionals with advanced specialized knowledge and abilities who lead research, technological development and engineering practice at the world's level in the areas of applied instrumentation, nanotechnology and electronic devices founded on the natural science around physics</p> <p>&lt;Subprogram in Materials Science&gt; Highly specialized professionals who possess the deep knowledge in the areas of expertise in materials engineering such as quantum physics of solid state, theoretical quantum physics, materials physics, and materials chemistry and biomaterials engineering and can contribute to the society through advanced research ability</p>
Diploma Policy	
The degree of Master of Engineering is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?

6. Fundamental engineering ability: Basic knowledge and academic abilities appropriate to highly specialized professionals in the areas of engineering	If one has interests in global trends in the areas of engineering and if knowledge was gained
7. Basic academic abilities indispensable for the comprehension in the areas of engineering	If mathematical knowledge and abilities widely used in engineering were gained
8. Specialized knowledge: Basic knowledge required for the comprehension in the areas in engineering	If one has interests in research trends in the areas of engineering and if specialized knowledge was widely gained
9. Ethical view: Ethical view required of highly specialized professionals in the areas of engineering	If researcher ethics, engineer ethics, and human research ethics as well as formalities and/or procedures necessary for research were sufficiently understood
10. Insight and problem-solving ability required to solve problems in practice in the areas of engineering	If papers or other materials in English in the areas of engineering are understood and research is carried out with the accomplishment of significant results

#### Dissertation evaluation criteria

##### 【Review board members】

Set up with one chief reviewer and two or more sub-reviewers.

##### 【Review method】

Thesis review and the final exam are administered in accordance with the method defined by each Subprogram.

1) Subprogram in Applied Physics

The thesis review board administers thesis review and final exam.

2) Subprogram in Materials Science

The thesis review board administers thesis review and final exam to evaluate if the student possesses the academic abilities and knowledge that become the foundations of all areas of materials engineering and the specialized knowledge of any of the areas of materials engineering and has successfully carried out research with a required level of results along with a specific theme in any of the areas of materials engineering.

##### 【Review items】

1. The setup of research tasks and the selection of research methods must be appropriate.
2. The interpretation of results and the development of line of reasoning before reaching the conclusion must be appropriate and unequivocal.
3. The preceding researches related to research tasks must be grasped and understood with appropriate appraisal and citation.
4. With adherence to research ethics, the obtained results and conclusions must be verifiable by third parties.
5. Academic significance must be identifiable in the outcomes of research tasks.

##### 【Level standards required for the degree thesis】

All of the above evaluation items and the criteria defined by each Subprogram must be met.

1) Subprogram in Applied Physics

The thesis passes as a master's thesis with the final exam included in the judgment.

2) Subprogram in Materials Science

The curriculum objectives defined in article 2, clause 3 of the school rules of Graduate Education at University of Tsukuba must be fulfilled. With this fulfillment, the thesis passes as a master's thesis with the final exam included in the judgment.



## Curriculum Policy

The curriculum is organized with Foundation Subjects for Major, Major Subjects, laboratory seminars, etc., graduate school seminars, and research activities for the areas founded on the natural science around physics, which are the areas of applied instrumentation, nanotechnology and electronic devices, and the areas of expertise in materials engineering such as quantum physics of solid state, theoretical quantum physics, materials physics, and materials chemistry and biomaterials engineering.

The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in pure and applied sciences and to have the big picture in mind in science and technology, which extends over natural science and engineering, as well as the generic knowledge and ability that support students to be active in diverse social scenes, along with the research ability, specialized knowledge and ethics in each area of expertise.

Curriculum organization policy	<p>In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, Colloquium on Pure and Applied Sciences (1 credit) must be taken as a required subject from Degree Programs' Common Courses, and students are encouraged to take other Degree Programs' Common Courses, Inter-disciplinary Foundation Courses and Graduate General Education Courses. The research supervision takes a multiple-instruction scheme to develop a research ability that exerts multifaceted perspectives.</p> <ul style="list-style-type: none"> <li>• Foundation Subjects for Major are organized with Common Foundation Subjects on a Subprogram basis so that the base subjects, which serve as the foundation of the areas of technology now and in the future, are expanded from the College level.</li> <li>• With Major Subjects, students gain deep specialized knowledge in specific areas in Subprograms.</li> </ul> <p>&lt;Subprogram in Applied Physics&gt;</p> <ul style="list-style-type: none"> <li>• Students take Major Subjects for the specialized disciplines commonly required in each area of specialty. In the seminar of each laboratory, which permits the participation of other laboratories' students, more specialized contents are learned.</li> <li>• In graduate school seminars, students make presentations about the outcomes of daily routine research activities. In this setting, students cultivate their logic forming skill, communication skill and communication ability.</li> </ul> <p>&lt;Subprogram in Materials Science&gt;</p> <ul style="list-style-type: none"> <li>• The Subprogram is composed of the four areas of "quantum physics of solid state", "theoretical quantum physics", "materials physics" and "materials chemistry and biomaterials". Each area's "Research IA, IB, IIA, IIB" (a total of 12 credits) are required subjects. In these subjects, in addition to the research activities according to each student's theme for master's thesis creation, students are required to make a research presentation once a year in "Master's Program Seminar", in which the students and faculty members in the major participate.</li> <li>• By this, students understand the significance, outcomes and position of the research theme that each one has respectively worked on and gain the presentation and communication abilities of explaining using their own words.</li> <li>• Basic academic abilities and the deep specialized knowledge in specific areas are gained with Foundation Subjects for Major and Major Subjects.</li> <li>• A wide perspective is acquired with specialized subjects of other Programs or other Courses, and Graduate General Education Courses.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• In the Subprogram in Applied Physics, students take Biological and Medical Engineering and Material and Device Physics for Nanoscience in addition to Quantum Mechanics, Statistical Mechanics, Electromagnetism and Solid State Physics, which are common Foundation Subjects for Major, so that the base subjects, which serve as the foundations of these areas now and in the future, can be expanded from the College level. In the Subprogram in Materials Science, students take "Materials Chemistry" and "Chemical Biology" so that the base subjects serving as the foundations of the four areas of "quantum physics of solid state", "theoretical quantum physics", "materials physics" and "materials chemistry and biomaterials" can be expanded from the College level.</li> </ul>

	<ul style="list-style-type: none"> <li>• For the details on Major Subjects, see below.</li> </ul> <p>&lt;Subprogram in Applied Physics&gt;</p> <ul style="list-style-type: none"> <li>• With Major Subjects (Introductory Sciences in Advanced Surface Measurements, Charged Particle and Plasma Engineering Science, Advanced Instrumentation I, Device Engineering, etc.), students learn for the specialized disciplines commonly required in each area of specialty.</li> <li>• Through the research activities and seminar presentations in Research IA, etc. in the area, students gain the fundamental abilities indispensable for the understanding and expansion of the advanced areas of specialty, as well as the highly specialized fundamental abilities required of the area's researchers or highly specialized professionals, practical insight and ability to act, wide perspective, problem-solving ability, and the presentation and communication abilities to debate with experts in the world.</li> </ul> <p>&lt;Subprogram in Materials Science&gt;</p> <ul style="list-style-type: none"> <li>• With Major Subjects (Introduction to Optical Properties of Solids, Group Theory in Molecules and Solids, Metallic Functional Materials, Polymer Chemistry, Energy Materials and Environmental Materials, Biomaterials, etc.), students seek to gain the specialized knowledge universally required in the area.</li> <li>• Through the research activities and seminar presentations in Research IA, etc. in the area, students acquire the abilities required of highly specialized professionals, such as highly specialized fundamental abilities, practical ability, broad perspective, problem-solving ability and information provision ability.</li> </ul>
Evaluation of learning outcomes	<p>The learning with General Foundation Subjects, Foundation Subjects for Major and Major Subjects and the master's thesis are evaluated by the thesis review board, and the outcomes of learning are evaluated with the final exam.</p> <p>&lt;Subprogram in Applied Physics&gt;</p> <ul style="list-style-type: none"> <li>• The outcomes concerning the specialized knowledge and communication ability necessary for engineering research and applied development are evaluated in each Major Subjects and special research (laboratory seminars, research activities, graduate school seminars).</li> <li>• Particularly in graduate school seminars, not only research and presentation qualities but also the abilities to respond to questions and ask questions are evaluated. Note that the objectiveness of evaluation is ensured with numerical evaluation conducted by all faculty members participating in the seminar in addition to the supervisory faculty member.</li> <li>• For thesis review and final exam, a thesis review board is set up with one chief reviewer and two or more sub-reviewers. In this review board, the student is evaluated by written examination and also evaluated orally to thereby ensure the level of research, the quality of thesis and the objectiveness of evaluation.</li> </ul> <p>&lt;Subprogram in Materials Science&gt;</p> <ul style="list-style-type: none"> <li>• The learning of Foundation Subjects for Major and Major Subjects are evaluated in the acquisition of basic academic abilities and knowledge and the acquisition of specialized knowledge in each area.</li> <li>• The research activities that each student performs to create a master's thesis with their respective themes as part of the required subjects "Research IA, IB, IIA, IIB" in each area take a system of supervision in which one student is supervised by chief supervisory and sub-supervisory faculty members as a total of two faculty members. In daily research supervision, these multiple faculty members evaluate the student to see the acquisition of the ability to carry out individual themes of research and obtain outcomes.</li> <li>• Similarly, in the "Master's Program Seminar" as part of "Research IA, IB, IIA, IIB", students are required to make a research presentation once a year so that the ability to independently explain the significance, findings and positions of the research theme is evaluated.</li> <li>• For thesis review and final exam, a thesis review board is set up with one chief reviewer and two or more sub-reviewers to evaluate if "the student possesses the academic abilities and knowledge that become the foundations of all areas of materials engineering and the specialized knowledge of any of the areas of materials engineering and has successfully carried out research with a required level of results along with a specific theme in any of the areas of materials engineering".</li> </ul>

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For this evaluation, the following five items are examined: ① Appropriateness of research theme and thesis subject ② Comprehension of research background, ③ Thesis content (methods, results, conclusion) and its academic and/or social significance, ④ Style of thesis presentation, expressions, rational discussions, ⑤ Adherence to research ethics.

#### Admission Policy

Desired students      We seek students who have the motivation to expand their learning in this area with their robust basic academic abilities and English proficiency necessary for learning advanced engineering, as well as extensive and deep curiosity, mental capability that spares no effort to make their purposes, high ethical view, robust disciplinary bases and sufficient communication ability.

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Selection policy      The base parameters for the selection of candidates are basic academic abilities and basic knowledge as well as the deep insight based on them. Those who have the motivation and concentration for carrying out research proactively and enthusiastically are selected through written and oral exams.

## Master's Program in Materials Innovation

Name of the degree to be conferred	Master of Engineering
Educational purpose	The Master's Program in Materials has committed tie-ups with research institutes in the Tsukuba region to cultivate human resources who are active in the international society using the innovation ability that is achieved by applying leading-edge materials sciences and technologies while looking into nature deeply and grasping global scale problems from the perspective of materials science and engineering.
Vision of human resources development	The Program seeks to cultivate human resources who can lead the future-oriented innovative energy materials and also the innovation in electronics so that they can contribute to the creation of social values. He or she should have the capabilities to design, analyze and create materials and grasp global scale social needs to be active in the international society by getting their English proficiency into full use.
Diploma Policy	

The degree of Master of Engineering is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Materials design ability: Foundations of quantum mechanics to learn the methodologies for designing materials	① If the basic knowledge necessary for quantum mechanics research was gained ② If the methodologies for designing materials were gained
7. Analytical ability for materials functionalities: Analytical foundations such as synchrotron radiation materials analysis, spectroscopy, scanning probe microscopy and electron microscopy to learn the techniques for analyzing materials functionalities at the molecular and electron level	① If analytical foundations such as synchrotron radiation materials analysis, spectroscopy, scanning probe microscopy and electron microscopy were gained ② If the techniques for analyzing materials functionalities at the molecular and electron level were gained

8. Materials creation ability: Foundations and methodologies for the synthesis of novel materials and the build of high-performance devices	① If the foundations for the synthesis of novel materials and the build of high-performance devices were gained ② If the methodologies for the synthesis of novel materials and the build of high-performance devices were gained
9. Fundamental engineering ability: Basic knowledge, academic abilities and research ethics appropriate to highly specialized professionals in the areas of engineering	① If the basic specialized knowledge in the areas of engineering sciences was gained ② If a wide range of specialized knowledge necessary for the applied development of research in the areas of engineering sciences was gained ③ If researcher ethics and engineer ethics were understood and adhered by
10. English communication ability: Ability to use English for the active access to researchers in the world to communicate as to research	If one has interests in global research trends in the areas of engineering sciences and if the ability to communicate in English with researchers in the world was gained

#### Dissertation evaluation criteria

##### 【Review board members】

Structure of thesis review board

Set up with one chief reviewer and two or more sub-reviewers.

##### 【Review method】

The thesis review board administers thesis review and the final exam or the confirmation of academic abilities.

##### 【Review items】

1. The setup of research tasks and the selection of research methods must be appropriate.
2. The line of reasoning must be clearly developed in English from the objectives of research to the conclusions.
3. The preceding researches related to research tasks must be grasped and understood with appropriate appraisal and citation.
4. With adherence to research ethics, the obtained results and conclusions must be verifiable by third parties.
5. Academic significance must be identifiable in research findings.

##### 【Level standards required for the degree thesis】

All of the above evaluation items must be met. The thesis passes with the final exam or the confirmation of academic abilities included in the judgment.

#### Curriculum Policy

Realms as pillars of education and research: Organized in energy materials engineering, environmental materials engineering, and electronic materials engineering.

The Program is designed to provide students with education and research supervision to develop a breadth of basic skills in pure and applied sciences and to have the big picture in mind in science and technology, which extends over natural science and engineering, as well as the generic knowledge and ability that support students to be active in diverse social scenes, along with the research ability, specialized knowledge and ethics in each area of expertise.

The education programs, which are all taught in English, are organized with Foundation Subjects for Major, which seek to enrich the disciplinary foundation, and Major Subjects, which cover leading-edge academic research.

##### Curriculum organization policy

In order to cultivate the basic skills and wide perspectives as well as generic knowledge and ability in associated areas with the student's major at the core, Colloquium on Pure and Applied Sciences (1 credit) must be taken as a required subject from Degree Programs' Common Courses, and students are encouraged to take other Degree Programs' Common Courses, Inter-disciplinary Foundation Courses and Graduate General Education Courses. The research supervision takes a multiple-instruction scheme to develop a research ability that exerts multifaceted perspectives.

• This curriculum arrangement is set down with students' interests in mind: On the one hand, students gain the basic concepts indispensable to pursue the Doctoral Program to be active as leading researchers in the future; on the other hand, students develop practical abilities that directly connect to research and development at companies.

	<ul style="list-style-type: none"> <li>• The seminars, including open seminars, in which students present their own research, and combined seminars, in which multiple laboratories are interrelated, help students cultivate a broad range of abilities to debate in English.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• With Materials Innovation Research IA, IB, IIA and IIB (Required subject: 3 credits each), students work on the research of their respective area of expertise and gain the basic knowledge by the end of the Master's Program. Students seek to improve the research ability to advance to the Doctoral Program and build the potential to accomplish the world's top research results in the future.</li> <li>• With Open Seminar IA, IB, IIA and IIB (Required subject: 1 credit each), Students present their respective research in English and make active English discussions. The resumes of presentations are created in English. Communication ability in English is gained.</li> <li>• With Joint Seminar IA, IB, IIA and IIB (Elective subject: 1 credit each), each student participates in research activities of other laboratories or those overseas over one semester to seek to deepen the research level in their own research theme and extend their interdisciplinary points of view. Students also experience diverse research environments by going to the seminars of other laboratories of areas different from the one that the student belongs, and are required to submit a report as to what they learn there.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The learning of Foundation Subjects for Major and Major Subjects is evaluated in the acquisition of basic academic abilities and knowledge and the acquisition of specialized knowledge in each area.</li> <li>• In the Open Seminar IA, IB, IIA and IIB, students are required to make a research presentation once a year so that the ability to independently explain in English the significance, findings and positions of the research theme is evaluated. In addition, communication ability in English is evaluated.</li> <li>• Whether the student shows learning outcomes appropriate to a master's degree in engineering is evaluated by the review of degree thesis.</li> <li>• For the degree thesis review and final exam, a thesis review board is set up with one chief reviewer and two or more sub-reviewers. In this review board, achievements are evaluated as the final examination which is administered with a written exam and an oral exam.</li> </ul>
Admission Policy	
Desired students	<p>We seek candidates who possess outstanding fundamental abilities and intellectual capabilities and are eager to research by actively opening up a new realm with an ambition to become an outstanding researcher in the future. The Program, which is all taught only in English, demands candidates to have sufficient English proficiency.</p>
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are solicited all over the world, not limited to Japan. The Program seeks candidates with a variety of backgrounds regardless of differences in nationality, race and gender. The quality that the Program values more than any other is a positive attitude that the candidate had toward the basic knowledge and basic experiment in the four years of the university. The potential students to be selected out should demonstrate the abilities that will be indispensable for the world's top graduate school master's program.</li> <li>• Through an online interview, candidates are evaluated for their basic academic abilities, abilities to debate in English, and logic forming skills. In addition, candidates' motivation to research is judged from the aspiration they have for the Master's Program and the subsequent future.</li> </ul>



## Doctoral Program in Mathematics

Name of the degree to be conferred	Doctor of Philosophy in Science
Educational purpose	The Doctoral Program in Mathematics cultivates researchers and university faculty members who can be internationally active with a wide perspective covering from pure to applied mathematics, and also social instructors in education and industry circles, etc. as well as highly specialized professionals who can apply mathematical knowledge into various areas.
Vision of human resources development	Researchers who can be internationally active with a wide perspective covering from pure to applied mathematics, social instructors in education and industry circles, etc., and other human resources who can apply advanced mathematical knowledge into various areas.
Diploma Policy	
The degree of Doctor of Philosophy in Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Mathematical analysis ability: Ability to see the nature of issues from a higher (mathematical) perspective and analyze them mathematically	① If deep understanding was gained as to the important problems in various research realms ② If a good command of basic mathematical knowledge was gained
7. Ability to carry out mathematical research: Ability to carry out research independently while setting up research tasks based on leading-edge advanced knowledge	① If problems are identified by oneself based on the leading-edge advanced knowledge in one's own area of expertise ② If research is carried out independently while a long-term plan is drawn up to work on its tasks

8. Ability to solve mathematical tasks: Ability to work on tasks from a higher perspective and by using leading-edge advanced mathematical knowledge	① If the use of leading-edge advanced mathematical knowledge is actively tried ② If capable of seeing problems from a higher perspective and solving them under a long-term plan
9. Information provision ability: Ability to provide research findings to the society through academic papers, academic lectures, etc.	① If sufficiently capable of debating on research with experts through academic papers or presentations in academia ② If one's research findings are clearly expressed to those from different areas and not just one's own area and if efforts to contribute to the society through mathematics are made
10. Mathematical expressiveness: Ability to debate with experts in various areas inside and outside Japan	① If the ability to smoothly communicate with overseas researchers was gained ② If the ability to explain and understand was gained to make specialized debates with experts of various areas

#### Dissertation evaluation criteria

##### 【Review board members】

Structure of thesis review board

Set up with one chief reviewer and three or more sub-reviewers.

##### 【Review method】

Prior to the receipt of a degree thesis, to determine the acceptance of the submission, the degree thesis is preliminarily reviewed. The dissertation review board administers dissertation review and the final exam or the confirmation of academic abilities.

##### 【Review items】

1. The research theme must be clearly indicated with the presence of academic significance.
2. The preceding researches associated with the research theme must be appropriately presented.
3. The line of reasoning to reach the conclusion must be provided logically and clearly.
4. The degree dissertation must be academically contributory of high academic value in the area.
5. The thesis must have appropriate sentence expressions and thesis construction as a degree thesis.

##### 【Level standards required for the degree thesis】

All of the above evaluation items must be met. The dissertation passes as a doctoral dissertation with the final exam or the confirmation of academic abilities included in the judgment.

#### Curriculum Policy

The curriculum is diversely organized with a system of education and research in the four areas of algebra, geometry, analysis and mathematics of information.

Curriculum organization policy	<p>Through fine research supervision according to each student's ability and the seminars in the areas of expertise, the curriculum is organized to train students to have a broad range of perspective from the foundation to application in the associated areas to leading-edge modern mathematics.</p> <ul style="list-style-type: none"> <li>• With Research in Algebra IIIA to VB, students gain advanced thinking ability for the grasping of algebraic structures.</li> <li>• With Research in Geometry IIIA to VB, students gain advanced thinking ability for the grasping of geometric structures.</li> <li>• With Research in Analysis IIIA to VB, students gain advanced thinking ability for the analysis of analytical structures.</li> <li>• With Research in Mathematics of Information IIIA to VB, students gain advanced thinking ability for mathematics of information.</li> <li>• With Internship in Mathematics III and Internship in Mathematics IV, students increase the abilities necessary for forming their future career paths.</li> <li>• With this area's Research IIIA, Research IIIB, Research IVA, Research IVB, Research VA and Research VB, students gain the above thinking abilities and at the same time gain the ability to carry out research while setting up research tasks independently, and the communication ability to grasp the problem awareness that those from different areas and not just one's own area have and express one's own specialized knowledge clearly to those from different areas and not just one's own area.</li> </ul>
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Learning methods • Processes	Carrying out leading-edge research under the advice of supervisory faculty members helps students develop the fundamental and applied abilities appropriate to a doctoral degree in science to grow to be a human resource who can conduct highly ingenious research.
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Major Subjects: Whether the fundamental abilities in the areas of mathematics appropriate to a doctoral degree in science were gained is evaluated with an oral exam.</li> <li>• Foundations in associated areas: Whether the fundamental abilities in the areas associated with the research appropriate to a doctoral degree in science were gained is evaluated with an oral exam.</li> <li>• Wide perspective: Whether a wide perspective appropriate to a doctoral degree in science was gained is evaluated by the interview at the time of the presentations.</li> <li>• Presentation and communication abilities: Whether the presentation and communication abilities appropriate to a doctoral degree in science were gained is evaluated by the interview at the time of the presentations.</li> <li>• Academic outcomes: Whether research outcomes appropriate to a doctoral degree in science were accomplished is evaluated through the review of his/her international academic papers.</li> <li>• The achievements in these items are evaluated at the final examination administered in the degree dissertation review and final exam.</li> </ul>
Admission Policy	
Desired students	He or she should possess mathematical knowledge as equivalent to a master's program completed in graduate school and have the great interest and motivation to research on mathematics and the high motivation to conduct research on leading-edge modern mathematics. In addition, we seek candidates who pursue to draw on their mathematical research abilities in the future to become a "researcher", "educator" or "highly specialized professional".
Selection policy	Selection places emphasis on the master's thesis content and post-enrollment research plan.

## Doctoral Program in Physics

Name of the degree to be conferred	Doctor of Philosophy in Science
Educational purpose	<p>The Doctoral Program in Physics is designed to help students discover problems willingly and develop the ability to research and solve them through learning to carry out leading-edge physical research under their initiative so that the Program cultivates human resources who are capable of being active as an independent researcher in academia and also industry.</p>
Vision of human resources development	<p>He or she should possess not only the qualities in physics but also the knowledge about the areas of associated disciplines and also the ability to scientifically challenge and break through problems that should be elucidated and solved.</p> <p>In academia, he or she should possess advanced specialized knowledge and real research ability and be capable of making strides in the frontier of science in the extensive areas of physics that spread out from the architecture of the universe to the materials world and in their boundary areas with other disciplines. In the industrial field, he or she should be capable of making innovations in industrial technologies by going back to the first principles of things to challenge difficult issues that no one could have solved.</p> <p>In the course of the history of the universe, the Program adopts a system of education that crosses over international research bases based on the viewpoint of seeing the disciplinary areas of particle physics, nuclear physics and physical cosmology as the evolution processes of the universe in order to thereby cultivate human resources who possess the interdisciplinary ability to involve all these areas along with a high level of expertise and are capable of being internationally active concerning the history of the universe.</p> <p>In the course of accelerator science, he or she should be capable of being active in this field in the future, through the research and next-generation accelerator development using the B-factory, J-PARC and accelerator-based synchrotron radiation science research facility of High Energy Accelerator Research Organization, etc.</p> <p>In the course of synchrotron radiation materials science, he or she should gain knowledge and skill in both areas of synchrotron radiation, etc. in addition to materials science through the research utilizing synchrotron radiation facilities (for example, PF, J-PARC, SPring-8 and overseas facilities), etc. and be capable of promoting materials development at universities or institutes inside and outside Japan, synchrotron radiation facilities or private sector companies.</p>
Diploma Policy	

The degree of Doctor of Philosophy in Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	<p>① Are there any research findings that can be considered new knowledge?</p> <p>② Can we expect you to create knowledge that will contribute to future society?</p>
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	<p>① Can you make and implement long-term plans for critical challenges?</p> <p>② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?</p>

3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Creative ability: Fundamental abilities to create physical knowledge to contribute to human society development by identifying a universal structure in the natural setting	① If problems are raised in consideration of the relationship between physics and society using wide knowledge in the areas of physics ② If concrete measures contributory to the society are proposed using the knowledge in their own area of expertise
7. Physical ability: Leading-edge scholarly knowledge and the ability to debate and conduct joint research with researchers inside and outside Japan	① If the basic specialized knowledge in the areas of physics was gained and physical phenomena are addressed with logical thinking ② If the advanced specialized knowledge in one's own area of research was gained and research is thereby carried out
8. Ability to carry out: Ability to independently carry out ingenious research developed out of one's own area of expertise further	① If the trends in one's own area of expertise are closely watched and academic significance is grasped from a broad view ② If one's own research is judged objectively and new strides are created
9. Information provision ability: Ability to provide a clear description of one's research to those from different areas and not just one's own area	① If the academic importance of one's own research is explained in an appealing way ② If a description of concepts peculiar to physics is made clear in a persuasive way to those from different areas and not just one's own area
10. Logical ability: Dedication to duty, logicity and independence as a scientist	① If one is enthusiastic about searching for natural truth, and corresponding action is accompanied ② If the planning, methodology, execution and confirmation of research are scientific and sincere

#### Dissertation evaluation criteria

##### 【Review board members】

Structure of thesis review board

Set up with one chief reviewer and three or more sub-reviewers.

##### 【Review method】

Prior to the receipt of a degree thesis, to determine the acceptance of the submission, the degree thesis is preliminarily reviewed. The dissertation review board administers dissertation review and the final exam or the confirmation of academic abilities. The final exam includes the evaluation of the ability for presenting one's research content to those from different areas and not just one's own area and the ability to have disciplinary communication with researchers from different areas and not just one's own area.

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**【Review items】**

1. Grasping and understanding of preceding researches associated with one's research content, and the appropriate appraisal and citation of their literature and materials
2. Setting of appropriate research tasks, and the clear presentation of research method and its appropriateness
3. Reproducibility of obtained results, or verifiability by third parties
4. Unequivocal thesis construction, and appropriate development of line of reasoning before reaching the conclusion
5. International-level academic contribution

**【Level standards required for the degree thesis】**

With the adherence to research ethics, all of the above evaluation items must be met. As for evaluation item ⑤, the degree dissertation must be written in English in principle, and if its overview has not been presented in any international academic journal, it must be presented within one year after the date of the grant of degree. The dissertation passes as a doctoral dissertation with the above requirements and the final exam or the confirmation of academic abilities included in the judgment.

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**Curriculum Policy**

The Program consists of a total of ten areas of expertise, which are theoretical particle physics, experimental particle physics, cosmology, observational cosmology, theoretical nuclear physics, experimental nuclear physics, theoretical condensed matter physics, experimental condensed matter physics, biophysics, and plasma physics, and a total of three realms, which are the history of the universe, accelerator science, and synchrotron radiation materials science.

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**Curriculum  
organization policy**

In the areas of particle physics, nuclear physics and astrophysics, the course of the history of the universe is organized for a system of education crossing over international research bases. In the areas of condensed matter physics, the Program organizes the course of synchrotron radiation materials science, where students can acquire the knowledge and skill in synchrotron radiation application which serves as a powerful technique for the search in materials science, through the cooperation of Japan Synchrotron Radiation Research Institute and Photon Factory. In addition, the course of accelerator science is organized through the education and research tie-up with High Energy Accelerator Research Organization.

Since physics is the foundation of natural science, the Program in Physics is deeply interrelated in research and education with other Programs of Graduate School, and research centers (Center for Computational Science, Tomonaga Center for the History of the Universe, Tsukuba Research Center for Energy Materials Science, Plasma Research Center, etc.) as well as major research institutes inside and outside Japan. Taking advantage of this characteristic, the Program provides various education programs, including the Cooperative Graduate School System (National Institutes for Quantum and Radiological Science and Technology, National Institute of Advanced Industrial Science and Technology, National Institute for Materials Science, RIKEN, NTT, NEC, etc.) and Tsukuba Resonance Education Program.

- Students belong to their respective area of specialty and thereby gain a high level of expertise.
- By taking special research subjects of each area, students acquire a wide perspective, and through the deepening of each one's original research theme, develop fundamental and applied abilities and fortitude as a researcher.
- In addition, students acquire practical abilities with information provision/communication ability development subjects in Graduate General Education Courses.

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**Learning methods •  
Processes**

Students belong to any of the laboratories of their respective area of specialty. By taking special research subjects of each area, students acquire a wide perspective, and through the deepening of each one's original research theme, develop fundamental and applied abilities and fortitude as a researcher, so that they can proceed as independent researchers.

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Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Special research as required subject: In special research, students are evaluated for the achievements as to specialized knowledge, foundations in associated areas, wide perspective, problem identification in reality to solution, presentation and communication abilities, international compatibility, academic outcomes and all other evaluation items through the experience of attending a special interest group, academic conference, international conference, etc. or studying abroad, etc. in addition to routine activities such as seminars, debates and literature introduction.</li> <li>• Review of dissertation: In the dissertation presentation and oral exam at the dissertation review, students are evaluated for the achievements as to problem identification in reality to solution, presentation and communication abilities, international compatibility, academic outcomes and other evaluation items.</li> </ul>
Admission Policy	
Desired students	We seek candidates who have master's degree level skills in physics and its associated scientific areas and English proficiency, have the great interest and motivation to conduct leading-edge research in the areas of physics and pursue to be a researcher in academia and industry.
Selection policy	Selection places emphasis on the master's thesis content and post-enrollment research plan.

## Doctoral Program in Chemistry

Name of the degree to be conferred	Doctor of Philosophy in Science
Educational purpose	The Doctoral Program in Chemistry cultivates highly versatile researchers who propose leading-edge research themes in the areas of chemistry, appropriately formulate research plans, smoothly driving such research forward, and can practice all of these independently with ingenuity from a global view whether in academia or industry.
Vision of human resources development	He or she should have the clear intention and sincere attitude to contribute to the world through chemistry, and the ability to plan and drive forward research independently with the understanding of social needs, communication ability and linguistic skill capable of negotiating in the international society, as well as the ability to provide or pass along such research findings to the society through their academic papers, etc. and also should couple all of these abilities with a high ethical view in their research activities.

### Diploma Policy

The degree of Doctor of Philosophy in Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Specialized chemical knowledge: Theoretical and practical knowledge about physical chemistry, organic chemistry and inorganic/analytical chemistry, and the ability to put it into use in actual research scenes	If theoretical and practical knowledge about physical chemistry, organic chemistry and inorganic/analytical chemistry, and the ability to put it into use in actual research scenes were gained

7. Logical thinking and problem-solving ability: Ability to analyze and solve problems by logical thinking	If the ability to analyze and solve problems by logical thinking was gained
8. English proficiency specialized in chemistry: Ability to use English in carrying out a presentation and question-and-answer session and writing a paper as to chemical research	If the ability to use English in carrying out a presentation and question-and-answer session and writing a paper as to chemical research was gained
9. Ability to drive research forward: Ability to set up research tasks and draw up long-term and short-term research plan	If the ability to set up research tasks and draw up long-term and short-term research plan was gained
10. Research ethical view of good quality: Ability to appropriately handle and store research data and to appropriately cite other researchers' findings	If research data are appropriately handled and stored and if other researchers' findings are appropriately cited

#### Dissertation evaluation criteria

##### 【Review board members】

A thesis review board, which is set up with a chief reviewer (supervisory faculty member) and three sub-reviewers, is launched.

The chief and sub-reviewers must be doctor's degree holders. In addition, the chief reviewer must belong to Tsukuba (including the Cooperative Graduate School System), and the sub-reviewers, to Tsukuba (including the Cooperative Graduate School System) or a research institution approved by the professor meeting in the chemical field.

##### 【Review method】

The chief and sub-reviewers review the submitted doctoral dissertation.

A doctoral dissertation review board opens and arranges the oral presentation and oral exam of the doctoral degree candidate to evaluate the comprehension of research content and the achievement of the research. After the board finishes evaluation, the dissertation reviewers have an evaluation meeting and decides on the final acceptance.

##### 【Review items】

1. The submitted doctoral dissertation must have a high level of completeness including the description, logical development and graphics.
2. The doctoral dissertation content must be on the world's high level standards as research in the areas of chemistry.
3. The doctoral dissertation must have references cited appropriately.
4. The doctoral dissertation must show the sufficient contribution of the doctoral degree applicant.
5. Preceding researches must be deeply understood and the disciplinary position of the research theme must be clear.
6. The doctoral dissertation content must be deeply understood and the question-and-answer session in the presentation must be carried out appropriately.

##### 【Level standards required for the degree thesis】

The dissertation passes if approved to be on a doctoral dissertation level in all criteria 1 to 5 and if approved to have an appropriate level of doctoral degree diploma with criterion 6 met in the presentation and oral exam in the doctoral dissertation review board.

#### Curriculum Policy

The curriculum places four large frameworks which include the boundary areas with life sciences and engineering, etc. in addition to inorganic/analytical chemistry, physical chemistry and organic chemistry, which form the foundation of chemistry. This system allows a research theme to involve a wide range of chemical areas. Through this specialized research, students conduct leading-edge research to experimentally and theoretically elucidate the structures and properties of various chemical substances as well as chemical reaction mechanisms, etc. at the molecular level. With this, students learn the chemical concepts covering from the foundation to application of chemical substances and also the advanced and very specialized techniques of experiment and research.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The curriculum is finely organized to let Major Subjects include exercises and seminars, which are offered with evaluation that is very carefully arranged in several steps so that students can gain the specialized contents of chemistry and also the abilities appropriate to a doctoral degree in science.</li> <li>• In exercises and seminars, students are always required to raise problems and propose solutions as to their own research and experiment as well as their dissertations with leading-edge research. In this way, students are thoroughly supervised to possess the logic to be able to analyze data precisely and objectively and also the ability to formulate their own research plans.</li> <li>• Above all, Research Proposal, which is a required subject, helps students develop the ability to independently unearth problems and plan a research.</li> <li>• In addition, some exercises and Graduate General Education Courses serve to train students to gain communication ability and linguistic skill.</li> <li>• As for the research area of each student, students learn advanced contents under the personal attention of supervisory faculty members in charge.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• The curriculum places four large frameworks which include the boundary areas with life sciences and engineering, etc. in addition to inorganic/analytical chemistry, physical chemistry and organic chemistry, which form the foundation of chemistry.</li> <li>• The curriculum is finely organized to let Major Subjects include exercises and seminars, which are offered with evaluation that is very carefully arranged in several steps.</li> <li>• Above all, Research Proposal, which is a required subject, helps students develop the ability to independently unearth problems and plan a research.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Foundation Subjects for Major: If the fundamental abilities appropriate to a doctoral degree in science were gained for the research area</li> <li>• Foundations in associated areas: If the fundamental abilities appropriate to a doctoral degree in science were gained for the areas associated with the research</li> <li>• Knowledge about problems in reality: If insight appropriate to a doctoral degree in science was gained as to problems in reality</li> <li>• Wide perspective: If a wide perspective appropriate to a doctoral degree in science was gained</li> <li>• Problem identification to solution: If the ability to identify problems in an area of specialty and lead them to concrete solutions was gained.</li> <li>• Presentation and communication abilities: If the logical presentation and communication abilities appropriate to a doctoral degree in science were gained</li> <li>• Academic outcomes: If research outcomes appropriate to a doctoral degree in science were accomplished. The achievements in these evaluation items are checked with careful supervision and evaluation repeated at each of the preparatory stages, including the Research Proposal review, interim report review, preliminary dissertation review, dissertation review, and final exam.</li> <li>• To grant a degree, all of the examinations need to be passed. As for academic outcomes, the publication of dissertation in a peer-reviewed international academic journal is required as a diploma requirement to confirm that the content works on an international level. The important guidelines to be applied for the evaluation of achievements are as follows: If the ability to propose a leading-edge research theme based on his/her own idea was gained; if he or she drew up an appropriate research plan in the research that he or she conducted, and based on this plan, the research was driven forward; and if research findings were organized as an academically highly significant dissertation.</li> </ul>

## Admission Policy

**Desired students**                      The Program seeks those who possess the sufficient scientific skills, logical and rational thinking abilities and linguistic skill cultivated in a master's program and can challenge problems persistently toward solutions. The Program, which seeks to cultivate researchers and highly specialized professionals possessing the advanced specialized knowledge and abilities to contribute to the society by playing a role in chemistry's progression in actual cutting-edge research scenes, welcomes those who can be actively committed to learning and research with a strong desire to learn to attain what the Program aims.

**Selection policy**                      In light of Desired Students, diverse candidates who possess the qualities and abilities appropriate as potential researchers or highly specialized professionals are selected. Candidates are evaluated from multifunctional and comprehensive points of view with consideration for fairness and diversity.

## Doctoral Program in Engineering Sciences

Name of the degree to be conferred	Doctor of Philosophy in Engineering
Educational purpose	In the diverse areas ranging from substances, materials, devices to measurement technologies, the Doctoral Program in Engineering Sciences is designed to cultivate outstanding researchers who base themselves on their sufficient fundamental abilities in science and possess the deep knowledge and rich creativity to address diverse problems in reality, as well as such researchers and highly specialized professionals who have the applied engineering ability and the ability to make use of it to create original technologies and cultivate potential younger talents.
Vision of human resources development	<p>Outstanding researchers who base themselves on their sufficient fundamental abilities in science and possess the deep knowledge and rich creativity to address diverse problems in reality in leading-edge engineering, as well as highly specialized professionals who possess the advanced research and development ability to contribute to the society</p> <p>&lt;Subprogram in Applied Physics&gt;</p> <p>Human resources who lead research, technological development and engineering practice at the world's level in the areas of applied instrumentation, nanotechnology and electronic devices founded on the natural science around physics; researchers who possess outstanding research and development abilities with rich creativity or highly specialized professionals with advanced specialized knowledge and abilities</p> <p>&lt;Subprogram in Materials Science&gt;</p> <p>Human resources who possess the research ability necessary as an independent researcher with the deep knowledge in the areas of expertise in materials engineering such as quantum physics of solid state, theoretical quantum physics and materials physics, and materials chemistry and biomaterials engineering; researchers capable of carrying out advanced research and highly specialized professionals possessing the advanced research ability to contribute to the society</p> <p>&lt;Subprogram in Materials Science and Engineering&gt;</p> <p>Researchers of the National Institute for Materials Science supervise research as Graduate School faculty members to train human resources in the areas of materials engineering, such as metal and ceramic materials engineering, nanomaterials engineering, organic and biomaterials engineering, engineering physics, and semiconductor materials engineering; researchers who have very creative, outstanding abilities in research and development and highly specialized professionals who possess advanced applied engineering ability and the ability to make use of it to contribute to various social issues as experts of materials engineering.</p>

### Diploma Policy

The degree of Doctor of Philosophy in Engineering is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?



3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Fundamental engineering ability: Knowledge and academic abilities appropriate to researchers or highly specialized professionals in the areas of engineering	If a clear description of the nature of the research content and specialized knowledge is provided to the uninitiated or those from different areas and not just one's own area
7. Basic academic abilities: Solid basic academic abilities indispensable for applied studies in the areas of engineering	If advanced mathematical knowledge and abilities widely used in engineering were gained
8. Specialized knowledge: Advanced specialized knowledge required for applied studies in the areas of engineering and associated areas	If a wide range of specialized knowledge in the areas of engineering and the advanced techniques for conducting leading-edge research were gained
9. Ethical view: High ethical view required of researchers or highly specialized professionals in the areas of engineering	If researcher ethics, engineer ethics, and human research ethics as well as formalities and/or procedures necessary for research were sufficiently understood
10. Practical insight and problem-solving ability: Insight and problem-solving ability required to solve problems in practice in the areas of engineering and associated areas	① If leading-edge research tasks were appropriately set up and research was carried out with the accomplishment of ingenious results ② If the presentation and communication abilities to debate with experts in the world were gained

#### Dissertation evaluation criteria

##### 【Review board members】

Structure of thesis review board

Set up with one chief reviewer and three or more sub-reviewers.

##### 【Review method】

Preliminary review, thesis review and the final exam are administered in accordance with the method defined by each Subprogram.

1) Subprogram in Applied Physics

Prior to the receipt of a degree thesis, to determine the acceptance of the submission, the degree thesis is preliminarily reviewed.

The thesis review board administers thesis review and final exam.

## 2) Subprogram in Materials Science

Prior to the receipt of a degree thesis, to determine the acceptance of the submission, the degree thesis is preliminarily reviewed.

The dissertation review board does an evaluation to see if the student possesses the academic abilities and knowledge that become the foundations of all areas of materials engineering and the specialized knowledge of any of the areas of materials engineering and has successfully carried out research with outstanding results while solving the tasks that he/she independently set out in any of the areas of materials engineering through the review of dissertation and the final exam or the confirmation of academic abilities.

## 3) Subprogram in Materials Science and Engineering

Prior to the receipt of a degree thesis, to determine the acceptance of the submission, the degree thesis is preliminarily reviewed. The thesis review board administers thesis review and final exam.

### 【Review items】

1. The setup of research tasks and the selection of research methods must be appropriate.
2. The interpretation of results and the development of line of reasoning before reaching the conclusion must be appropriate and unequivocal.
3. The preceding researches related to research tasks must be grasped and understood with appropriate appraisal and citation.
4. With adherence to research ethics, the obtained results and conclusions must be verifiable by third parties.
5. Academic significance must be internationally identifiable in the outcomes of research tasks.

### 【Level standards required for the degree thesis】

All of the above evaluation items and the criteria defined by each Subprogram must be met.

#### 1) Subprogram in Applied Physics

Before a dissertation review board is opened, one first-author dissertation must be available to be published or posted in an academic journal.

The dissertation passes as a doctoral dissertation with the final exam included in the judgment.

#### 2) Subprogram in Materials Science

The curriculum objectives defined in article 2, clause 3 of the school rules of Graduate Education at University of Tsukuba must be fulfilled.

With this fulfillment, the dissertation passes as a doctoral dissertation with the final exam or the confirmation of academic abilities included in the judgment.

#### 3) Subprogram in Materials Science and Engineering

A dissertation for degree grant meeting all of the above evaluation items passes as a doctoral dissertation with the final examination included in the judgment.

## Curriculum Policy

The curriculum is designed to cultivate researchers and highly specialized professionals in the areas of applied instrumentation, nanotechnology and electronic devices, and the areas of quantum physics of solid state, theoretical quantum physics, materials physics, and materials chemistry and biomaterials engineering, etc., and the areas of materials engineering such as metal and ceramic materials engineering, nanomaterials engineering, organic and biomaterials engineering, engineering physics, and semiconductor materials engineering.

### Curriculum

#### organization policy

The curriculum is organized to help students gain specialized knowledge and abilities on the world's high level standards in the areas of engineering.

#### <Subprogram in Applied Physics>

- Research is supervised from multifunctional points of view by way of a system of multiple supervisory faculty members. With this, the curriculum cultivates solid fundamental abilities and the deep specialized fundamental abilities founded on them and seeks to help students develop practical insight and the ability to act as well as the ability to solve problems.

- In the seminars opened for Research in Applied Physics, students are mandatorily required to make presentations to a wide variety of audiences from different areas and not just one's own area.

For the presentations, students are encouraged to use English to develop the presentation and communication abilities that allow them to debate with experts in the world.

- With internship, overseas research dispatch, etc., students learn to develop a broad point of view and also the international insight to prepare them to be active worldwide.



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<Subprogram in Materials Science>

- The Subprogram is formed by the four areas of “quantum physics of solid state” , “theoretical quantum physics” , “materials physics” and “materials chemistry and biomaterials” . However, the subjects that students should take to complete the Subprogram are only the “Research IIIA, IIIB, IVA, IVB, VA and VB” (18 credits in total), which are the required subjects of each area. In these subjects, in addition to the research activities according to each student’s theme for doctoral dissertation creation, students are required to make a research presentation once a year in “Doctoral Program Seminar” , in which the students and faculty members in the major participate, and use English in this presentation to be trained to present research progress and have debates in English.
- By this, students gain advanced specialized knowledge and the insight, problem-solving ability and communication ability required to actually solve problems.
- To gain a wide perspective not limited to the deep specialized knowledge in specific areas, students are encouraged to take Major Subjects in the Master’s Program, specialized subjects of other Programs or Courses, and Graduate General Education Courses.

<Subprogram in Materials Science and Engineering>

- Students learn under an international and intellectually stimulating research environment at a materials research institute. The curriculum is organized to develop specialized knowledge, basic knowledge in associated areas, the insight that enables students to draw up and set up research plans for new proofs of concept, skills of experimentally or theoretically carrying out drawn and set up research plans, high ethical view in research activities, and the English communication ability capable of internationally providing research outcomes through academia or paper presentations and capable of open and natural debates with overseas researchers.
- As subjects that should be taken to achieve this commitment, the curriculum offers “Research IA and IB” , “Research IIA and IIB” and “Research IIIA and IIIB” (18 credits in total), as well as “Seminar I” and “Seminar II” (2 credits in total).
- In “Research” which is pursued under a leading and international research environment, students are engaged in advanced research activities for doctoral dissertation creation.
- In “Seminar” , students are trained to present research progress and have debates in English.

In addition, to gain a wide range of knowledge in the areas of engineering, students are encouraged to take the Master’s Program subjects “Nanomaterials I” and “Nanomaterials II” in which faculty members provide discussion of their respective area of research.

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Learning methods •  
Processes

Students take special research subjects to meet the fundamental abilities indispensable for the understanding and expansion of the advanced engineering areas of specialty and the necessity of organizing a degree dissertation containing the world’s level outstanding research outcomes appropriate to a doctoral degree.

<Subprogram in Applied Physics>

- Through “Research in Applied Physics IIIA, IIIB, IVA, IVB, VA and VB” , students gain the fundamental abilities indispensable for the understanding and expansion of the advanced areas of specialty in the areas of applied instrumentation, nanotechnology and electronic devices, as well as the highly specialized fundamental abilities required of these areas’ researchers or highly specialized professionals, practical insight and ability to act, wide perspective, problem-solving ability, and the presentation and communication abilities to debate with experts in the world.

<Subprogram in Materials Science>

- Through “Research IIIA, IIIB, IVA, IVB, VA and VB” in the four areas of “quantum physics of solid state” , “theoretical quantum physics” , “materials physics” and “materials chemistry and biomaterials” , students gain the abilities to set up tasks in their own right, then independently carry out research and understand the significance, outcomes and position of the research theme as well as the ability to provide information in English.
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<NIMS Subprogram in Materials Science and Engineering>

- In “Research in Materials Science and Engineering IA, IB, IIA, IIB, IIIA and IIIB” , students are engaged in the world’s leading edge research and development in the areas of metal and ceramic materials engineering, nanomaterials engineering, organic and biomaterials engineering, engineering physics and semiconductor materials engineering, and thereby gain the high fundamental abilities and ethical view in research activities as well as the advanced specialized knowledge in the area, the skills to carry out research plans and the ability to solve tasks.
- In “Seminar in Materials Science and Engineering I and II” , students present their respective researches and have debates in English and thereby gain the ability to internationally present research outcomes and the communication ability.

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Evaluation of learning  
outcomes

After the preliminary review process, the degree dissertation is submitted to a degree dissertation review board set up by four or more reviewers to be evaluated with examination and the final exam.

<Subprogram in Applied Physics>

- Research is supervised and evaluated from multifunctional points of view by way of a system of multiple supervisory faculty members.
- The presentation for the graduate school seminar in Research in Applied Physics is fairly examined with numerical evaluation by all of the participating faculty members.
- In this, not only research and presentation qualities but also the abilities to respond to questions and ask questions are evaluated.
- Solid fundamental abilities and the outstanding specialized fundamental abilities founded on them, as well as the presentation and communication abilities and international insight are ensured.
- The review of degree dissertation along with preliminary review and the final exam are administered by the chief reviewer and three or more sub-reviewers, which include external experts as sub-reviewers. This evaluation includes an oral exam in addition to a written exam to ensure the satisfaction of the research level and dissertation quality on the worldwide standards and the objectiveness of evaluation.

<Subprogram in Materials Science>

- The research activities that each student performs to create a doctoral dissertation with their respective themes as part of the required subjects “Research IIIA, IIIB, IVA, IVB, VA and VB” in each area take a system of supervision in which one student is supervised by chief supervisory and sub-supervisory faculty members as a total of two faculty members. In daily research supervision, these multiple faculty members evaluate the student to see the acquisition of the ability to independently set out tasks, carry out research and attain outcomes.
- Similarly, in the “Doctoral Program Seminar” as part of “Research IIIA, IIIB, IVA, IVB, VA and VB” , students are required to make a research presentation once a year so that the ability to independently explain the significance, findings and positions of the research theme, as defined in item ④ of Diploma Policy, is evaluated.
- As for the review of degree dissertation, the dissertation is preliminarily reviewed prior to its receipt to determine the acceptance of the submission.

After accepted, the dissertation is evaluated by a dissertation review board set up with one chief reviewer and three or more sub-reviewers, which include faculty members who do not belong to this Subprogram or include external faculty members, etc. The review board does an evaluation to see if “the student possesses the academic abilities and knowledge that become the foundations of all areas of materials engineering and the specialized knowledge of any of the areas of materials engineering and has successfully carried out research with outstanding results while solving the tasks that he/she independently set out in any of the areas of materials engineering” through the review of dissertation, the final exam in the public review board, and the confirmation of academic abilities.

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For this evaluation, the following five items are examined: ① Appropriateness of research theme and dissertation subject ② Grasping of research background, position and ingenuity of research ③ Dissertation content (methods, results, conclusion), its academic and/or social significance, impact, contribution ④ Style of dissertation presentation, expressions, rational discussions, level of completeness (quality) ⑤ Adherence to research ethics.

<NIMS Subprogram in Materials Science and Engineering>

- In Seminar in Materials Science and Engineering I and II in addition to Research in Materials Science and Engineering IA, IB, IIA, IIB, IIIA and IIIB, students are evaluated if they gained the ability to research from multifunctional points of view, fundamental abilities, specialized knowledge and the skills to carry out a research plan, together with the evaluation of achievements in research.

- Particularly, as part of the above subject, all students are mandatorily required to present their respective research content in English once a year.

This presentation is evaluated from multifunctional points of view by all faculty members in the major to see the achievements in research and the presentation ability, including whether the research contains the specialized knowledge on a level appropriate to a doctorate and responds to social issues and whether the student exhibits the insight as an expert in the areas of materials engineering and the communication ability capable of having a debate in English.

- In the review of degree dissertation along with preliminary review, the doctoral dissertation content is evaluated by the chief reviewer and three or more sub-reviewers.

To evaluate the dissertation from diverse perspectives, one or more faculty member who does not belong to this Subprogram participates as a sub-reviewer. In the final exam, an oral exam is publicly administered in addition to a written exam to ensure the satisfaction of the research level and dissertation quality on the worldwide standards and the objectiveness of evaluation.

## Admission Policy

### Desired students

We seek candidates who have interests in engineering sciences, the robust disciplinary bases gained in the master's program, sufficient communication ability, extensive and deep curiosity, strong mental capability that spares no effort to make their purposes, high ethical view, deep long-range perspective, and outstanding foresight.

### Selection policy

The base parameters for the selection of candidates are basic academic abilities and basic knowledge as well as the deep insight based on them. Those who have the motivation and concentration for carrying out research proactively and enthusiastically are selected through an oral exam based on the master's thesis content and the post-enrollment research plan.

## Doctoral Program in Materials Innovation

Name of the degree to be conferred	Doctor of Philosophy in Engineering
Educational purpose	The Doctoral Program in Materials Innovation has committed tie-ups with research institutes in the Tsukuba region to cultivate educators, researchers and highly specialized professionals who lead the innovation for building a better and advanced materials' society from a higher perspective that can see environmental and energy problems and other global scale issues using their basic knowledge in a wide range of natural sciences of different disciplines.
Vision of human resources development	He or she should possess advanced abilities as to materials, lead the innovation in the future-oriented innovative energy materials, environmental materials chemistry and electronics, and create ideas for global scale social needs to be active as a leader in the international society by getting their English proficiency into full use.
Diploma Policy	
The degree of Doctor of Philosophy in Engineering is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Theoretical design ability: Ability to design materials based on quantum mechanics or thermodynamics	① If the ability to design materials based on quantum mechanics was gained ② If the ability to design materials based on thermodynamics was gained



7. Analytical ability for materials functionalities: Ability to elucidate materials functionalities at the molecular and electron level using synchrotron radiation materials analysis, scanning probe microscopes and other analytical instruments	① If the ability to elucidate materials functionalities at the molecular and electron level using synchrotron radiation materials analysis, scanning probe microscopes and other analytical instruments was gained
8. Materials creation ability: Ability to create novel materials or high-performance devices	① If the ability to create novel materials or high-performance devices was gained
9. Fundamental engineering ability: Knowledge, academic abilities and research ethics appropriate to researchers or highly specialized professionals in the areas of engineering	① If the advanced specialized knowledge indispensable as a researcher in the areas of engineering sciences was gained ② If a wide range of specialized knowledge necessary for the applied development of research in the areas of engineering sciences was gained ③ If researcher ethics and engineer ethics were understood and adhered by
10. English negotiation ability: Ability to use English for the active access to researchers in the world to communicate as to research	If one has deep interests in global research trends in the areas of engineering sciences and if the ability to negotiate in English with researchers in the world was gained

#### Dissertation evaluation criteria

##### 【Review board members】

Structure of thesis review board

Set up with one chief reviewer and three or more sub-reviewers.

##### 【Review method】

Prior to the receipt of a degree thesis, to determine the acceptance of the submission, the degree thesis is preliminarily reviewed.

The thesis review board administers thesis review and the final exam or the confirmation of academic abilities.

##### 【Review items】

1. The research tasks must be set up with ingenuity, and the selection of research methods must be appropriate.
2. The line of reasoning must be clearly developed in English from the objectives of research to the conclusions.
3. The preceding researches related to research tasks must be grasped and understood with appropriate appraisal and citation.
4. With adherence to research ethics, the obtained results and conclusions must be verifiable by third parties.
5. Academic significance must be internationally identifiable in research outcomes.

##### 【Level standards required for the degree thesis】

All of the above evaluation items must be met, and before a dissertation review board is opened, one first-author dissertation must be available to be published or posted in an academic journal. The dissertation passes as a doctoral dissertation with the final exam included in the judgment.

#### Curriculum Policy

Realms as pillars of education and research: Organized in energy materials engineering, environmental materials engineering, and electronic materials engineering.

The curriculum seeks to develop human resources who can practice engineering application based on pure science by removing the conventional boundaries between science and engineering.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Seminars are organized to develop students' practical abilities with a variety of researchers invited as instructors from diverse scenes ranging from pure research to manufacturing and mounting worksites in a tie-up with AIST, NIMS and KEK as well as overseas academic institutes attaining outstanding successes and from industry circles. The curriculum also seeks to cultivate global human resources who are capable of challenging various issues and overcoming them.</li> </ul>
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Learning methods · Processes	<ul style="list-style-type: none"> <li>• With Materials Innovation Research IIIA, IIIB, IVA, IVB, VA and VB (Required subject: 3 credits each), students actively deepen the research of their respective area of expertise and focus their energy on accomplishing the world's top research results by seeking to improve the research ability for completing the Doctoral Program.</li> <li>• Research Proposal (Required subject in the Doctoral Program's first year: 1 credit), which focuses on the setup of students' research themes, is learned in the first academic year of the Doctoral Program. In this subject, each student plans the background, significance, and expected results of research other than own research theme. Students present the proposed research plan in a seminar format in English and hold a discussion to develop the ability to draw up a research plan. The faculty members and all students in the major attend the proposal presentations, have discussions and appraise students' presentations.</li> <li>• In Open Seminar IIIA, IIIB, IVA, IVB, VA and VB (Required subject: 1 credit each), students participate in the lectures of external researchers active at the world's forefront and seminars with student research presentations and to submit a report as to what they learn. Students also participate in discussion in English actively to gain international communication ability in English.</li> <li>• With Joint Seminar IIA, IIIB, IVA, IVB, VA and VB (Elective subject: 1 credit each), each student participates in research activities of other laboratories or those overseas over one semester to seek to deepen the research level in their own research theme and extend their interdisciplinary points of view. Students also experience diverse research environments by going to the seminars of other laboratories of areas different from the one that the student belongs.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• With Materials Innovation Research IIIA, IIIB, IVA, IVB, VA and VB (Required subject: 3 credits each), the acquisition of research ability is evaluated from multifunctional points of view by way of a system of research supervision with multiple supervisory faculty members.</li> <li>• The specialized ability based on the basic knowledge about materials and the presentation ability in English are evaluated.</li> <li>• In Open Seminar IIIA, IIIB, IVA, IVB, VA and VB (Required subject: 1 credit each), communication and management abilities in English are evaluated through research presentation in English, serving as a chairperson, seminar arrangement and discussion.</li> <li>• Whether the student shows learning outcomes appropriate to a doctoral degree in engineering is evaluated by the review of degree dissertation.</li> <li>• For the degree dissertation review and final exam, a dissertation review board is set up with one chief reviewer and three or more sub-reviewers. In this review board, achievements are evaluated as the final examination which is administered with a written exam and an oral exam.</li> </ul>
Admission Policy	
Desired students	<p>We seek candidates who possess outstanding fundamental abilities and intellectual capabilities and are eager to research with an ambition to become an outstanding researcher in the future.</p> <p>The Program, which is all taught only in English, demands candidates to have sufficient English proficiency.</p>
Selection policy	<p>Potential students are solicited worldwide and selected by an online interview as to the research outcomes that the candidate has earned so far and the post-enrollment research plan.</p> <p>Communication ability in English is evaluated.</p>

## Master's Program in Policy and Planning Sciences

Name of the degree to be conferred	Master of Science in Policy and Planning Sciences
Educational purpose	The “Master's Program in Policy and Planning Sciences” cultivates international specialists “problem-solving type human resources (mode 1 type human resources) in engineering for future visions” who can do advocacy and contribute to social requirements from a technical point of view.
Vision of human resources development	He or she should have the “problem-solving ability” founded on social knowledge, logical thinking ability, and various kinds of engineering skills as a “problem-solving type human resource (mode 1 type human resource) in engineering for future visions” and should be capable of being active as an IT engineer, production planning/marketing engineer, government-funded bank, financial analyst, consultant, think tank researcher, urban planning or community development consultant, managerial position at an organization, financial planner, construction or real estate project/development planner, town architect, public employee in national or municipal planning departments, etc.

### Diploma Policy

The degree of Master of Science in Policy and Planning Sciences is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of policy and planning sciences	① If research tasks in the areas of policy and planning sciences are appropriately set up ② If the basic techniques for conducting research in the areas of policy and planning sciences were gained ③ If research in the areas of policy and planning sciences is carried out with the accomplishment of significant results

7. Specialized knowledge: Advanced specialized knowledge and command of the areas of policy and planning sciences	① Understanding of social phenomena (Find): If social phenomena are deductively understood based on the advanced knowledge about basic theories and rules of thumb in the areas of policy and planning sciences ② Data analysis (Analyze): If social phenomena are inductively understood based on data analysis ③ Institution design (Plan): If institutions for social reforms are designed based on the understanding of social phenomena ④ Experiment and advocacy (Do): If concrete advocacy or social experiment is done based on a designed institution ⑤ Evaluation and measurement (See): If results of social experiment or advocacies are critically measured and evaluated in one's own right to deepen the understanding of social phenomena
8. Ethical view: Ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of policy and planning sciences	① If researcher ethics and engineer ethics were understood and adhered by ② If human research ethics as well as formalities and/or procedures necessary for research were understood

#### Dissertation evaluation criteria

A thesis is accepted if all of the following evaluation items are proven to be met.

##### <Criteria for degree thesis review>

1. Significance of research theme: If the problems concerning social phenomena identified and argued in the thesis for their solutions are found as academically significant or significant enough to lead to social contributions
2. Understanding of preceding researches: If existing theories and researches associated with one's research theme are accurately understood and objectively appraised. If then, the research deeply debates issues, including as to the theoretical contributions that the research could add to the literatures or as to the practical significance that the research could attain to the society, economy, urban environments, business organizations and the workers there.
3. Understanding and appropriateness of research methods: If the methods (demonstration, experiment, simulation, investigation, survey and other design and data analysis, etc.) used to pursue the research theme are deeply understood and the skills to use them well in order to pursue the research theme were sufficiently gained
4. Appropriateness of presentation and interpretation of research results: If the skill to academically present research results and the thinking ability to interpret them deductively or inductively are possessed
5. Research overall: If the research is capable of doing advocacy that could be contributable to the society or if the research successfully has developed a significant debate toward future research trends as results of an overview of steps 1 to 4 above and the objective evaluation of strengths and weaknesses of the research
6. Format of thesis: If the appropriate level as an academic paper is reached in terms of the appropriateness of sentence expressions, the presentation and citation of graphics and literatures and the creation of literature list in the thesis

##### <Criteria for final exam>

1. **【Research ability】** If the basic knowledge and ability to set research tasks and carry out a research plan in the areas of policy and planning sciences were gained
2. **【Specialized knowledge】** If the advanced specialized knowledge and command of the areas of policy and planning sciences were gained
3. **【Ethical view】** If the ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of policy and planning sciences were gained

##### <Level standards required for the degree thesis, review board members, review method and review items, etc.>

A master's thesis review board must be organized with one chief reviewer and two or more sub-reviewers who are applicable faculty members of the Degree Programs in Systems and Information Engineering of the Graduate School.

The chief reviewer opens a master's thesis review board, and the board reviews the thesis in accordance with the criteria for degree thesis review to judge the acceptance of the thesis.

The thesis passes if approved to be on a master's thesis level in all of the above evaluation items 1 to 6 with the final (oral) exam included in the judgment.

## Curriculum Policy

To develop the “problem-solving ability” founded on social knowledge, logical thinking ability and various kinds of engineering skills, the curriculum is organized on the three pillars of ① assets/resources design (finance/optimization), ② spatial/environmental design (urban planning) and ③ organizational/behavioral design (behavioral science), so that students gain the specialized knowledge and research abilities related to these pillars as well as a wide range of basic knowledge and ethical view in the areas of engineering and that the Program cultivates such human resources who can identify and solve problems from a wide perspective over multiple areas in science and technology.

### Curriculum organization policy

The curriculum is designed to help students gain the “problem-solving ability” for social problems.

To cultivate the fundamental abilities in policy and planning sciences, the Foundation Subjects for Major in Degree Programs’ Common Courses are organized as core subjects. Moreover, to develop the specialized knowledge and abilities ranging from the understanding of phenomena to model build and data analysis, the specialized subjects in Degree Programs’ Common Courses are organized for the three areas of ① assets/resources design (finance/optimization), ② spatial/environmental design (urban planning) and ③ organizational/behavioral design (behavioral science) and the shared area involving each of these areas.

Furthermore, Foundation Subjects for Major and Major Subjects are organized in Program subjects, and while using the “Division of Policy and Planning Sciences Commons”, which is physical and virtual resources shared by students and faculty members, students have both the fundamental and specialized abilities established in them by creating a master’s thesis under a system of research that supervises students in a multifaceted way through a researcher group such as research units.

Note that the Course in Strategic Frontiers for Regional Revitalization for working individuals, which is opened in the Program and positions “Introduction to Strategic Frontiers for Regional Revitalization”, “Mobility Innovations and Their Application for Society” and “Blockchain Technology for Regional Revitalization” (subjects for Strategic Frontiers for Regional Revitalization) as required subjects, places a special emphasis on the cultivation of human resources who will be engaged in community development in the future.

Students gain (generic knowledge and ability) through Graduate General Education Courses, Inter-disciplinary Foundation Courses, and specialized foundation subjects. Particularly, the following knowledge and abilities are expected to be gained through core subjects, Facilitation Training subjects, and subjects for Strategic Frontiers for Regional Revitalization:

- Students gain Competence of knowledge application through “Mathematics for Policy and Planning Sciences”, “Microeconomics”, “Social Simulation”, “Statistical Analysis”, “Spatial Information Science” and other core subjects and subjects for Strategic Frontiers for Regional Revitalization or “Internship in Policy and Planning Sciences”.
- Students gain Management competence, Communication competence and Teamwork competence through “Workshop in Policy and Planning Sciences I and II” in which active learning is done as group work, “Internship in Policy and Planning Sciences”, “Facilitation Training Program in Policy and Planning Sciences” subjects, and “Active Learning in Strategic Frontiers for Regional Revitalization” subjects.
- Students gain Competence in Internationality through core subjects and subjects for Strategic Frontiers for Regional Revitalization, which use plain teaching methods on the basis of international research circumstances, and “Workshop in Policy and Planning Sciences I and II”, “Internship in Policy and Planning Sciences”, “Facilitation Training Program in Policy and Planning Sciences” subjects, and “Active Learning in Strategic Frontiers for Regional Revitalization” subjects, in which students learn with the active learning method as group work with international students.

(Specialized knowledge and abilities) are gained as follows:



	<ul style="list-style-type: none"> <li>• Students gain the basic knowledge in research through Graduate General Education Courses, Inter-disciplinary Foundation Courses, core subjects and subjects for Strategic Frontiers for Regional Revitalization, and then gain research ability through “Basic Master's Seminar in Policy and Planning Sciences I and II” , “Special Master's Seminar in Policy and Planning Sciences I and II” and “Research in Policy and Planning Sciences I and II” .</li> <li>• Students learn with the following subjects to develop the abilities to acquire the specialized knowledge necessary for the “problem-solving ability” , which is required for the entire areas of policy and planning sciences: “Game Theory” , “Urban and Environmental Planning” , etc. to develop the ability to understand social phenomena, “Mathematics for Policy and Planning Sciences” , “Statistical Analysis” , etc. to develop the ability to perform data analysis, “Microeconomics” , “Institutions, Policy Decision” , etc. to develop the ability to design institutions, “Social Simulation” , “Spatial Information Science” , etc. to develop the ability to do experiment and advocacy, and “Corporate Valuation” , etc. to develop the ability to make evaluation and measurement.</li> <li>• Through “Internship in Policy and Planning Sciences” and “Facilitation Training Program in Policy and Planning Sciences” subjects, students gain the particular ethical view that is required for functioning well in the society, and through “Basic Master's Seminar in Policy and Planning Sciences I and II” , “Special Master's Seminar in Policy and Planning Sciences I and II” and “Research in Policy and Planning Sciences I and II” , students gain the ethical view related to research.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students take specialized foundation subjects (8 credits or more) in Degree Programs' Common Courses in mainly the spring semester of the first year by reference to the following models: Curriculum model ① (Business) consultant or managerial position at an organization, financial planner; Curriculum model ② System engineer at an IT consulting company; Curriculum model ③ Think tank researcher. Being positioned as part of these subjects, Graduate General Education Courses and Inter-disciplinary Foundation Courses are encouraged to be taken.</li> <li>• By reference to the three types of curriculum models, students earn 12 credits or more in mainly the fall semester of the first year from the Major Subjects in Degree Programs' Common Courses organized as the three areas of ① assets/resources design (finance/optimization), ② spatial/environmental design (urban planning) and ③ organizational/behavioral design (behavioral science) and the shared area involving each of these areas.</li> <li>• Concurrently with the above, master's theses are supervised in a multifaceted way by supervisory faculty members and researcher groups such as an advisory group (AG) and research unit, and under this system of supervision, students proceed with conducting research on their respective research tasks and take 12 credits of specialized subjects in Program subjects concerning the writing of theses.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Achievements are evaluated using an achievement evaluation sheet in a total of four times every semester. The evaluation sheet is designed to help students evaluate themselves if their learning has maintained balance in gaining the abilities of “understanding of social phenomena” , “data analysis” , “institution design” , “experiment and advocacy” and “measurement and evaluation” and the knowledge of the areas of “assets/resources design” , “organizational/behavioral design” and “spatial/environmental design” . This evaluation sheet is every time completed with achievement checks by an interview between the supervisory faculty member and the student. Particularly in the fourth evaluation, which is made after the mid-term presentation, the evaluation includes checks as to whether the research reflects the past advice of AG faculty members, the student exchanged opinions with AG faculty members in the question-and-answer session at the mid-term presentation, and the research goes well on the whole toward the completion of the master's thesis.</li> <li>• Basic Master's Seminar in Policy and Planning Sciences, Special Master's Seminar in Policy and Planning Sciences, and Special Master's Research Work in Policy and Planning Sciences are examined and evaluated at the three stages of the research plan presentation in the first year, the mid-term presentation and the final examination board in the second year.</li> </ul>



## Admission Policy

**Desired students** We seek candidates who possess engineering fundamental abilities (mathematical or logical thinking abilities) and the basic knowledge about one of the three areas of assets/resources design (finance/optimization), spatial/environmental design (urban planning) and organizational/behavioral design (behavioral science).

**Selection policy**

- To accept outstanding and diverse human resources inside and outside Tsukuba, candidates are solicited through multiple entrance exam means including recommendation entrance exam, general entrance exam and special entrance exam for adults at different timings and different numbers of students admitted.
- Irrespective of the type of entrance exam, an oral exam is mandatorily required.
- To prove foreign language proficiency, candidates are required to submit the score sheet of English language test (e.g. TOEIC, TOEFL).
- In the recommendation entrance exam, the potential students to be selected out must excel academically, especially in the abilities necessary for the research in the areas of policy and planning sciences.
- In the general entrance exam, the potential students to be selected out must possess certain fundamental abilities and research abilities.
- The special entrance exam for adults evaluates the achievements and experiences as an adult member of society in addition to fundamental abilities and research abilities.

## Master's Program in Service Engineering

Name of the degree to be conferred	Master of Engineering in Service Science
Educational purpose	The "Program in Service Engineering" cultivates "pioneers for the future in the areas of service (mode 2 type human resources)" as highly specialized professionals who possess both advanced specialized knowledge and well-rounded human nature.
Vision of human resources development	The Program cultivates "pioneers for the future in the areas of service (mode 2 type human resources)", that is, human resources who can challenge present and future social problems, then create and practice new methods and verify results scientifically in the areas of service. He or she should be capable of being active as a service development engineer or person in charge of business planning in a company, governmental person in charge of community service development, entrepreneur, etc.
Diploma Policy	
The degree of Master of Engineering in Service Science is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of service engineering	① Scientific analysis ability: If the skills to scientifically analyze circumstances and give them engineering solutions were gained ② Ability to challenge problems in reality: If the positive attitude, social skills and cooperativeness to challenge problems in reality were gained
7. Specialized knowledge: Advanced specialized knowledge and command of the areas of service engineering	Ability to apply skills: If the know-how about how to use one's skills well in diverse service fields was gained
8. Ethical view: Ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of service engineering	① If researcher ethics and engineer ethics were understood and adhered by ② If human research ethics as well as formalities and/or procedures necessary for research were understood

## Dissertation evaluation criteria

A thesis is accepted if all of the following evaluation items are proven to be met.

<Criteria for degree thesis review>

1. Significance of research theme: If the theme is found to be significant to challenge present and future problems in reality in the areas of service engineering and to create and practice new service methods
2. Understanding of preceding researches: If existing theories and researches associated with one's research theme are accurately understood and appraised. If then, the issue as to how the research could contribute to the literatures or could attain practical significance in the areas of service engineering is deeply debated.
3. Understanding and appropriateness of research methods: If the methods (demonstration, experiment, simulation, investigation, survey and other design and data analysis, etc.) used to pursue the research theme are deeply understood and the skills to use them well in order to pursue the research theme were sufficiently gained
4. Appropriateness of presentation and interpretation of research results: If the skill to academically present research results and the thinking ability to interpret them deductively or inductively are possessed
5. Research overall: If the research is capable of doing advocacy that could be contributable to the areas of service engineering or if the research successfully has developed a significant debate toward future research trends as results of an overview of steps 1 to 4 above and the objective evaluation of strengths and weaknesses of the research
6. Format of thesis: If the appropriate level as an academic paper is reached in terms of the appropriateness of sentence expressions, the presentation and citation of graphics and literatures and the creation of literature list in the thesis

<Criteria for final exam>

1. **【Research ability】** If the basic knowledge and ability to set research tasks and carry out a research plan in the areas of service engineering were gained
2. **【Specialized knowledge】** If the advanced specialized knowledge and command of the areas of service engineering were gained
3. **【Ethical view】** If the ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of service engineering were gained

<Level standards required for the degree thesis, review board members, review method and review items, etc.>

A master's thesis review board must be organized with one chief reviewer and two or more sub-reviewers who are applicable faculty members of the Degree Programs in Systems and Information Engineering of the Graduate School.

The chief reviewer opens a master's thesis review board, and the board reviews the thesis in accordance with the criteria for degree thesis review to judge the acceptance of the thesis.

The thesis passes if approved to be on a master's thesis level in all of the above evaluation items 1 to 6 with the final (oral) exam included in the judgment.

## Curriculum Policy

The curriculum is organized to provide students with specialized knowledge and research ability as to service engineering (Science of Effectiveness (quantitative analysis skill to identify services required by customers and the society), Science of Efficiency (skill to improve efficiency for an organization to secure a reasonable profit), Art of Integration (integrated skill to overcome the trade-offs arising between the said effectiveness and efficiency)) as well as a wide range of basic knowledge and ethical view in the areas of engineering, so that the Program cultivates highly specialized professionals who can identify and solve problems from a wide perspective extending over multiple areas in science and technology.

The Program in Service Engineering is designed to develop human resources who can challenge present and future social problems, then create and practice new methods and verify results scientifically in the areas of service. To attain this purpose, the Program vigorously drives forward education and research in cooperation with private/public industry and academia such as by actively having faculty members who are engaged at work in companies or national/municipal organizations. Thus, the Program builds itself up as a trinity characterized by the three aspects: the curriculum contributes to the communities as well, research findings are accumulated, and good students result under these environments.

Curriculum organization policy	<p>Major Subjects and Foundation Subjects for Major are organized in Degree Programs' Common Courses and in Program subjects.</p> <p>Students gain (generic knowledge and ability) through Graduate General Education Courses, Inter-disciplinary Foundation Courses, and Foundation Subjects for Major. Particularly, the following knowledge and abilities are expected to be gained through Program subjects:</p> <p>Through "Consumer Psychology", "Regional Data Analysis", "Big Data Analytics" and such other required subjects involving group work (matrix type course work, 9 subjects/18 credits) and "Facilitation Training Program in Service Engineering", "Internship (Master's Program in Service Engineering)", etc., students gain the Competence of knowledge application, Management competence, Communication competence, Teamwork competence, and Competence in Internationality.</p> <p>(Specialized knowledge and abilities) are gained as follows:</p> <ul style="list-style-type: none"> <li>• To gain the basic skills to scientifically analyze circumstances and give them engineering solutions, students learn through matrix type course work in addition to Graduate General Education Courses and Inter-disciplinary Foundation Courses. The research ability is gained through "Special Seminar in Service Engineering I and II" and "Special Research Work in Service Engineering I and II" (Service learning = Private/public industry-academia collaboration research).</li> <li>• With elective subjects, students gain specialized knowledge as to the methodology and know-how about how to use the basic skills well.</li> <li>• Students gain ethical view through "Facilitation Training Program in Service Engineering", "Internship (Master's Program in Service Engineering)" and service learning = Private/public industry-academia collaboration research.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Around the spring semester of the first year, students take nine required subjects (2 credits × 9 subjects) that cover the three services, which are real service (human to human), community service (organization to community) and virtual service (organization to humans through IT), and the three skills, which are Science of Effectiveness (quantitative analysis skill to identify services required by customers and the society), Science of Efficiency (skill to improve efficiency for an organization to secure a reasonable profit), and Art of Integration (integrated skill to overcome the trade-offs arising between the said effectiveness and efficiency).</li> <li>• After the fall semester of the first year, students take subjects covering the specialized knowledge about each of the three services and those covering the specialized knowledge about each of the four skills which additionally include hypothetical verification and service progression (skill to implement solutions and verify results scientifically).</li> <li>• After fall semester C of the first year, during which the above learning has almost completed, students get predominantly involved in practical research activities through private/public industry-academia collaboration research and take 8 credits of Major Subjects related to the writing of a thesis.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Achievements are evaluated every semester using an achievement evaluation sheet; in total, four evaluations are made.</li> </ul> <p>This evaluation sheet is every time completed with achievement checks by an interview between the supervisory faculty member and the student.</p> <p>The first evaluation sees the basic leaning of the nine required subjects, the second evaluation sees how the student gains the knowledge covered in Major Subjects, and the third evaluation sees the progress of his/her master's thesis. In the fourth evaluation, which is made after the mid-term presentation, the evaluation includes checks as to whether the research reflects the past advice of AG faculty members, the student exchanged opinions with AG faculty members in the question-and-answer session at the mid-term presentation, and the research goes well on the whole toward the completion of the master's thesis.</p>

- Service learning: For private/public industry-academia collaboration research, students are examined and evaluated at the three stages of the research plan presentation at the end of the fall semester of the first year, the mid-term presentation at the end of the spring semester of the second year, and the final examination board at the end of the fall semester of the second year.

## Admission Policy

### Desired students

We seek candidates who possess engineering fundamental abilities (mathematical or logical thinking abilities) and the basic knowledge about one of the three areas of assets/resources design (finance/optimization), spatial/environmental design (urban planning) and organizational/behavioral design (behavioral science).

### Selection policy

- To accept outstanding and diverse human resources inside and outside Tsukuba, candidates are solicited through multiple entrance exam means including recommendation entrance exam, general entrance exam and special entrance exam for adults at different timings and different numbers of students admitted.
- Irrespective of the type of entrance exam, an oral exam is mandatorily required.
- To prove foreign language proficiency, candidates are required to submit the score sheet of English language test (e.g. TOEIC, TOEFL).
- In the recommendation entrance exam, the potential students to be selected out must excel academically, especially in the abilities necessary for the research in the areas of service engineering.
- In the general entrance exam, the potential students to be selected out must possess certain fundamental abilities and research abilities.
- The special entrance exam for adults evaluates the achievements and experiences as an adult member of society in addition to fundamental abilities and research abilities.

## Master's Program in Risk and Resilience Engineering

Name of the degree to be conferred	Master of Engineering
Educational purpose	In these days of destabilized social conditions, one of the most important issues is to reach for secure and safe lands, districts, economy, and information society that have both “strength” and “flexibility” based on appropriate risk management, that is, a resilient system of society. The Master's Program in Risk and Resilience Engineering seeks to cultivate highly specialized professionals who possess the “ability to be flexible to unforeseen and changing circumstances from an engineering point of view, keep providing the required functionalities, and get them recovered” , which is in other words, the advanced skills that can put the results of risks analyzed and evaluated by engineering methods into use to reach for a resilient society and who can pass along the outcomes of education and research to the society with a view focused on actual social problems.
Vision of human resources development	He or she should possess, based on the fundamental engineering ability, the foundations and associated information processing techniques for risk and resilience analysis and evaluation, and by adapting them from a wide point of view to the real world's problems, which are the subject of risk and resilience engineering, he or she should be able to come up with and develop concrete methods for identifying a problem and providing a solution using engineering means while fulfilling his or her given role shares in a research team or research project by bringing out sufficient communication ability, and if required, taking a leadership position.
Diploma Policy	
The degree of Master of Engineering is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Fundamental engineering ability: Basic knowledge and academic abilities appropriate to highly specialized professionals in the areas of engineering	① If the basic knowledge in the areas of risk and resilience engineering was gained ② If the academic abilities as highly specialized professionals in the areas of risk and resilience engineering were gained



7. Knowledge of foundations and associated techniques: Knowledge of the foundations for risk and resilience analysis and evaluation, and associated information processing techniques	① If the foundations for analyzing risks potential in complex phenomena and evaluating them from a resilience viewpoint were gained ② If the information processing techniques for analyzing risks potential in complex phenomena and evaluating them from a resilience viewpoint were gained
8. Knowledge about problems in reality: Knowledge about problems in reality that involve risk and resilience engineering	If the knowledge about the problems in reality, to which risk and resilience engineering is applied, was gained
9. Ability to have the big picture in mind from a wide perspective: Ability to interpret, from a wide perspective, the issues to which risk and resilience engineering is applied	If a wide perspective for interpreting the issues, to which risk and resilience engineering is applied, was gained
10. Ability to identify and solve problems: Ability to understand the process from identifying to solving a risk-resilience problem using engineering means and come up with and develop the concrete means to provide a solution	① If problems are led to concrete solutions with the understanding of the application of specialized skill——Solution process starting from problem identification ② If researcher ethics and engineer ethics were well understood and adhered by
11. Global communication ability: Ability to fulfill one's given role shares, bring out sufficient communication ability, and if required, take a leadership position in a research team or research project	① If one's given role shares are fulfilled in a research team or research project ② If sufficient communication ability is brought out, and if required, a leadership position is taken in a research team or research project

#### Dissertation evaluation criteria

A thesis is accepted if all of the following evaluation items are proven to be met.

Note that the review of the research outcomes of specific tasks (the “specific task research report” ) can take the place of the review of master's thesis.

<Criteria for degree thesis review>

1. The thesis must be the results of the research in which the diploma applicant took the initiative in accordance with research ethics.
2. The research must contain novelty or usefulness.
3. The thesis must be appropriately constructed and the content must be correct.
  - (1) The theme of the thesis must be appropriate.
  - (2) The backgrounds and purposes of research must be clear.
  - (3) The methods of research must accord with the purposes.
  - (4) Results must be correctly drawn.
  - (5) Discussion must be argued based on results.
  - (6) The conclusion must be clear.
  - (7) Citations must be appropriate.

<Criteria for specific task research report review>

1. The report must be the results of the research in which the diploma applicant took the initiative in accordance with research ethics.
2. The research must contain novelty or usefulness.

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3. The report must be appropriately constructed and the content must be correct.

(1) The theme of the report must be appropriate.

(2) The backgrounds and purposes of research must be clear.

(3) The methods of research must accord with the purposes.

(4) Results must be correctly drawn.

(5) Discussion must be argued based on results.

(6) The conclusion must be clear.

(7) Citations must be appropriate.

<Criteria for final exam>

The evaluation is based on how the question-and-answer session goes for the explanation of the degree thesis and related matters and the results of achievement evaluation.

<Level standards required for the degree thesis, review board members, review method and review items, etc.>

The evaluation of degree thesis requires the approval of a master's thesis review board formed by one chief reviewer and two or more sub-reviewers. The chief reviewer and two or more sub-reviewers must be faculty members of Degree Programs in Systems and Information Engineering.

Opening a master's thesis review board, the chief reviewer evaluates the thesis in accordance with the criteria for degree thesis review and judges the acceptance of the thesis after having obtained approval of the board. The thesis passes if approved to be on a master's thesis level in all of the above evaluation items 1 to 3 with the final exam included in the judgment.

## Curriculum Policy

The curriculum is organized to attain the Diploma Policy requirements listed above and cultivate human resources who possess the specialized knowledge and research ability for risk and resilience engineering (risk and resilience engineering infrastructure, information system security, urban disaster prevention and social resilience, environment and energy systems), a wide range of basic knowledge and ethical view in the areas of engineering, and can be effective immediately for the comprehensive analysis of risks latent in complex social phenomena from a wide perspective that extends over multiple areas in science and technology.

Curriculum organization policy	In the Master's Program, Degree Programs' Common Courses are organized with Major Subjects and Foundation Subjects for Major, and Program subjects, with Major Subjects and Foundation Subjects for Major. With Program subjects, students learn with lectures and seminars to cultivate presentation and communication abilities and a wide perspective and also take the project subjects, which help students understand the process from identifying to solving problems using engineering means and develop means to provide a solution. Degree Programs' Common Courses, students learn the foundations and information processing techniques of each of the areas and take the subjects for deepening the knowledge of actual problems involving risk studies. The Program subjects help students deepen the understanding of other areas than that of his or her own area of expertise. Students attain the requirements enumerated in Diploma Policy by incorporating the learning in these subjects and the research of each student's area of expertise into a degree thesis or specific task research report.
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Learning methods · Processes	<p>The requirements enumerated in Diploma Policy are attained as follows.</p> <ol style="list-style-type: none"><li>1. "Fundamental engineering ability", which is covered in almost all of the subjects, is gained through the subjects provided in the Degree Program. In addition, a wider range of learning is possible with Inter-disciplinary Foundation Courses.</li><li>2. "Foundations and associated techniques", which is covered in almost all of the subjects, is gained through the subjects provided in the Degree Program. Particularly through Special Master's Research Work, students can learn more deeply the foundations and information processing techniques for analyzing risks potential in complex phenomena and evaluating them from a resilience viewpoint.</li><li>3. "Problems in reality" which is covered in almost all of the subjects, is learned particularly through specialized subjects.</li><li>4. The abilities for "wide perspective", which are covered in almost all of the subjects, are gained particularly through the subjects taught by faculty members in the Cooperative Graduate School System with companies, research institutes, etc. In addition, students can learn more deeply through the internship subjects taught by those faculty members.</li></ol>
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5. The abilities to “identify and solve problems” are gained through Special Master's Research Work, in which each student carries out their respective research under supervisory faculty members, and the internship subjects taught by faculty members in the Cooperative Graduate School System with companies, research institutes, etc.
6. The abilities for “communication” are gained through Special Master's Seminar, Special Master's Research Work and Project Research. In addition, students can learn more deeply through risk and resilience engineering group PBL seminars, etc., in which they are divided into groups and assigned to work on a theme.

The achievement progress of the requirements is periodically checked in accordance with the achievement evaluation scheme described below, and along the degree of achievement, the student receives appropriate advice from the faculty member, who is the achievement evaluation board member responsible for the student.

#### Evaluation of learning outcomes

The quality of education is assured with the following system of achievement evaluation. Achievements are evaluated for the following six achievement evaluation items.

- ① Fundamentals of engineering: Basic knowledge and academic skills of advanced professionals in engineering were gained
  - ② Knowledge of basic theories and related skills: Knowledge of fundamental theories for risk and resilience analysis and assessment, and knowledge of information processing technologies related to risk and resilience analysis and assessment were gained
  - ③ Knowledge of issues in the real world: Knowledge of real-world issues covered by risk and resilience engineering was gained
  - ④ Broad perspective overlooking circumstance: Ability to see the subject of risk and resilience engineering from a broad perspective was gained
  - ⑤ Abilities of problem setting and solving: Ability to understand the process from setting up problems to solving them by engineering means, and to devise and develop specific solutions for problems related to risk and resilience were gained
  - ⑥ Global communication ability: Ability to fulfill assigned roles in a research team or research project, demonstrate adequate communication skills, and take on leadership roles as needed was gained
- Achievements are evaluated by the achievement evaluation board, which is administered with an interview between each student and three or more faculty members twice every academic year.

The feedback on the evaluation results are given to students for the use of improving subsequent learning. The requirement to pass the final exam is the approval as appropriate to a master's degree in engineering in all items at the final achievement evaluation. As the criteria for achievement evaluation, the points allocated to each of the above six items are stipulated for each subject. Students are required to score more points than the stipulated total points in each evaluation item before the completion of the Program.

This achievement evaluation system is improved at all times in accordance with the PDCA cycle defined below.

Plan: Plan an achievement evaluation system and draw up implementation details, standards, etc.

Do: Evaluate the achievements of each student individually by multiple faculty members.

Check: Cross-check how the achievement evaluation system is formulated against how it is actually used.

Act: Improve detected problems in the system or usage.

## Admission Policy

Desired students	<p>We seek candidates who are interested in understanding a wide range of risks and their countermeasures and want to meet the challenge of risk and resilience in elucidating and evaluating problems in reality using their cross-disciplinary ability to have the big picture in mind from an interdisciplinary perspective. While the knowledge in a specific area is not necessarily required to learn in the Master's Program in Risk and Resilience Engineering, we welcome those who have interests in the mathematics and information processing skills, which serve as the foundation, and on the other side, have the desire to improve themselves in the communication and presentation abilities to be active in the actual world as well as the motivation in passing along their outcomes to the society through industry-academia collaboration, social collaboration, education and research outcomes, etc.</p>
Selection policy	<p>To select out enrollments, diverse candidates are sought through the recommendation entrance exam, general entrance exam, special entrance exam for adults or other enrollment selection methods.</p> <p>The opportunity of entrance exam is offered multiple times in the same year with the split of the number of persons admitted. For the selection of enrollment, candidates are required to take an oral exam and submit the official transcript meeting the application eligibility in correspondence with the characteristics of the area. To prove foreign language proficiency, candidates are required to submit the score sheet of English language test (e.g. TOEIC, TOEFL).</p> <ul style="list-style-type: none"><li>• In the recommendation entrance exam, the candidates must remarkably excel academically and possess the sufficient knowledge and research abilities in the areas of risk and resilience engineering.</li><li>• In the general entrance exam, the potential students to be selected out must possess certain fundamental abilities and research abilities.</li><li>• The special entrance exam for adults evaluates the achievements and experiences as an adult member of society in addition to fundamental abilities and research abilities.</li></ul>

## Master's Program in Computer Science

Name of the degree to be conferred	Master of Engineering
Educational purpose	The Master's Program in Computer Science organizes its education and research to cultivate individuals with deep expertise in diverse areas of computer science as well as the knowledge, specialized research ability and practical work ability that work on global demands and standards, and possess both ingenuity and flexibility and can use all of these to contribute to solving the problems in a specific field by informatics approaches.
Vision of human resources development	To develop researchers and highly skilled professionals who possesses specialized knowledge and engineering abilities in a wide range of areas in computer science as well as the communication and presentation abilities for his or her area of expertise and the fundamental abilities for carrying out research and development and applying these knowledge and abilities to solve various real-world problems.
Diploma Policy	

The degree of Master of Engineering is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: The ability to identify new research questions by oneself, and to prepare and execute a plan of action to answer these questions using advanced specialized knowledge and skills in a wide range of areas in computer science	① Whether research tasks in the areas of computer science are appropriately set up ② Whether specialized skills for conducting research and development in the areas of computer science were gained ③ Whether research plans in the areas of computer science are drawn up and steadily carried out with effective outcomes
7. Specialized knowledge: Advanced specialized knowledge and skills in a wide range of areas in computer science, and the ability to use them	① Whether the fundamental knowledge in the areas of systems and information engineering is gained ② Whether the advanced specialized knowledge and skills in the areas of computer science are gained ③ Whether the specialized knowledge and skills that one possesses are appropriately used

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| 8. Ethical view: Refined ethical view in a wide range of areas in computer science | ① Whether researcher ethics and engineer ethics are understood and adhered by<br>② Whether human research ethics as well as formalities and/or procedures necessary for research are understood |
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#### Dissertation evaluation criteria

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A thesis is accepted if all the following evaluation standards are met. Note that the review of the research outcomes of specific tasks (the “specific task research report”) can take the place of the review of master’s thesis.

##### <Criteria for degree thesis review>

1. Whether the thesis provides a clear description of the significance and positioning of the research based on the understanding of research and development trends and previous studies in the areas of computer science
2. Whether the thesis shows research outcomes accompanied by new perspectives, findings, interpretations or applied values in comparison with conventional research
3. Whether the research results are adequately discussed and sufficiently verified in reliability
4. Whether research backgrounds, purposes, methods, results, discussions and the line of reasoning are developed logically and demonstratively
5. Whether the thesis is organized in a format and style of presentation appropriate as a Master’s thesis with sentence expressions appropriately used and literatures, graphics, etc. correctly cited with proper referencing.

##### <Criteria for specific task research report review>

1. Whether an appropriate problem set for solving problems in the field of computer science using advanced ICT is presented
2. Whether the process of practical development project planned and managed by the student to build software and system is clearly described
3. Whether the results of the research are logically and empirically demonstrated to contribute to the solution of the problem.
4. Whether the report is organized in a format and style of presentation appropriate as a research report with sentence expressions appropriately used and literatures, graphics, etc. correctly cited with proper referencing

##### <Criteria for final exam>

**【Research ability】** Whether advanced specialized knowledge and skills in a wide range of areas in computer science was gained

**【Research ability】** Whether new tasks are identified and a plan to solve them is drawn up and steadily carried out in one’s own right

**【Specialized knowledge】** Whether the advanced specialized knowledge and skills in a wide range of areas in computer science and the ability to use them were gained

**【Ethical view】** Whether the refined ethical view in a wide range of areas in computer science was gained

**【Communication competence】** Whether the ability to express things accurately and clearly and make debates of expertise was gained

<Level standards required for the degree thesis or specific task research report, review board members, review method and review items, etc.>

A master’s thesis review board must be organized with one chief reviewer and two or more sub-reviewers who are applicable faculty members of the Degree Programs in Systems and Information Engineering of the Graduate School.

However, where required, faculty members of other Degree Programs or other university graduate schools or laboratory researchers, etc. can serve as sub-reviewers.

The chief reviewer must be the research supervisor. As the sub-reviewers, two or more applicable faculty members of the Degree Programs in Systems and Information Engineering of the Graduate School must be included.

The chief reviewer opens a master’s thesis review board, and the board reviews the thesis or research report in accordance with the criteria to judge the acceptance of the thesis or research report.

The thesis passes if approved to be on a master’s thesis level in all of the above evaluation items 1 to 5 with the final (oral) exam included in the judgment.

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## Curriculum Policy

The curriculum is organized to provide students with the specialized knowledge and research ability in mathematical informatics engineering, intelligence software, software systems, computer engineering, media engineering and intelligence/information engineering. These fields cover from the basal technologies intended for the generation, processing, and utilization of “information”, such as computers, networks, and security, to the applied technologies, such as web applications, user interfaces, speech recognition/image analysis and high-performance computing. In addition, students gain a wide range of basic knowledge and ethical view in the areas of engineering. The program also offers research supervision to aid in the development of Master’s thesis. The facility cultivates human resources able to identify and solve problems from a wide perspective extending over multiple areas in science and technology.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The Master's Program in Computer Science organizes Major Subjects and Foundation Subjects for Major in Degree Programs' Common Courses and in Program subjects.</li> <li>• With the “required subjects in Program subjects” and “Foundation Subjects for Major in Degree Programs' Common Courses”, students gain fundamental engineering abilities.</li> <li>• With “Degree Programs' Common Courses”, students gain the knowledge and skills in the areas of information science.</li> <li>• With the “required subjects in Program subjects”, students are engaged in research activities in the area of expertise under the advice of supervisors. Through these, students gain knowledge and skills in the areas of information science, the inquisitive quality for the area of expertise, presentation ability and the knowledge and skills in science and technology in addition to the Competence of knowledge application, Management competence, Communication competence and Teamwork competence.</li> <li>• With the “Foundation Subjects for Major in Degree Programs' Common Courses”, the following abilities are gained: <ul style="list-style-type: none"> <li>- With “Experiment Design in Computer Sciences”, students gain Competence of knowledge application, Management competence, Competence in Internationality, the knowledge and skills in the areas of information science, and the inquisitive quality for the area of expertise.</li> <li>- With “Instructional Design”, students gain Communication competence and presentation ability.</li> </ul> </li> <li>• With seminars and “Mid-term Presentation of Master’s Thesis”, students gain presentation experience. With “Project Practice Workshop” and “Initiative Project I/II”, students gain software development skills and cultivate Communication ability and teamwork skills.</li> <li>• With “Graduate General Education Courses”, “Interdisciplinary Foundation Courses”, “Degree Programs' Common Courses”, etc. students gain the knowledge in a wide range of areas including the areas of information science.</li> <li>• Through TA (Teaching Assistant) activities, supervising the research activities of junior students in their laboratories, etc., students gain management experience.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Each student sets up research tasks in their respective areas of expertise and proceeds with conducting research under the advice of supervisors.</li> <li>• Students take “specialized foundation subjects in Degree Programs' Common Courses” and “Graduate General Education Courses” to gain generic knowledge, abilities, etc., and “Interdisciplinary Foundation Courses”, “Degree Programs' Common Courses” and “Program subjects” to gain specialized knowledge and ability, etc.</li> <li>• “Project Practice Workshop”, “Initiative Project I/II”, etc., help students improve group skill and communication ability.</li> <li>• Obtained research findings are presented in seminars and “Mid-term Presentation of Master’s Thesis” to have feedback from participating students and faculty members and to be presented in research meetings inside and outside Japan or in academic journals, etc.</li> <li>• “Internship I/II”, with which students participate in internships at companies, research institutes, etc., helps students improve communication ability, etc.</li> </ul>

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Learning outcomes are evaluated based on the “achievement evaluation sheet” .</li> <li>• In the seminar of the first year, the student presents the research outcomes that are available at that point and receives evaluation and feedback.</li> <li>• At the end of the first year, the student checks the achievement evaluation sheet together with supervisors to check the achievements at that point of time and review the learning plan for the second year.</li> <li>• At the “Mid-term Presentation of Master’s Thesis” in the second year, the student receives interim evaluation and feedback on the research outcomes for Master’s thesis creation.</li> <li>• At the final exam, final thesis examination is administered with the student’s presentation about the degree thesis content, and the review board checks the achievement evaluation sheet.</li> </ul>
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## Admission Policy

Desired students	<p>The Master's Program in Computer Science widely seeks candidates inside and outside Japan who possess basic skills in the areas of information science and mathematics and have a keen desire to gain the specialized knowledge, engineering skills, fundamental research and development abilities and practical abilities in the areas of information science or the areas of mathematics of information in the Graduate School.</p>
Selection policy	<ul style="list-style-type: none"> <li>• To accept outstanding and diverse human resources inside and outside Tsukuba, candidates are solicited through multiple entrance exam channels including recommendation entrance exam, general entrance exam and special selection of working students at different timings and different numbers of students admitted.</li> <li>• To prove foreign language proficiency, candidates are required to submit the score sheet of English language test (e.g. TOEIC, TOEFL).</li> <li>• In the general entrance exam, recommendation entrance exam and special entrance exam for working students, candidates are evaluated through document screening and an oral exam so that the candidates can be comprehensively evaluated, including their communication and presentation abilities, etc.</li> </ul>

## Master's Program in Intelligent and Mechanical Interaction Systems

Name of the degree to be conferred	Master of Engineering
Educational purpose	The Master's Program in Intelligent and Mechanical Interaction Systems investigates engineering systems based on mathematical models representing the complex phenomena of humans, society, and nature, as well as theories in various fields such as mathematics, physics, and informatics working in harmony to contribute to the real world. This program cultivates high-level professionals with the fundamental knowledge and ethical views in the field of engineering, who possess the technical expertise and the research abilities to identify and solve problems from a wide perspective.
Vision of human resources development	Students develop advanced knowledge and skills in the field of Intelligent and Mechanical Interaction Systems in addition to fundamental knowledge and academic abilities appropriate for high-level professionals able to contribute to society by identifying and solving relevant problems in the field of engineering.

### Diploma Policy

The degree of Master of Engineering is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research skills: To possess the fundamental skills necessary to set up a compelling research topic in the field of Intelligent and Mechanical Interaction Systems and to be able to conduct the research and produce significant outcomes.	① To be able to set up a compelling research topic in the field of Intelligent and Mechanical Interaction Systems. ② To possess the fundamental skills necessary to conduct research in the field of Intelligent and Mechanical Interaction Systems. ③ To be able to carry out research in the field of Intelligent and Mechanical Interaction Systems and produce significant outcomes.

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| 7. Specialized knowledge skills: The ability to develop fundamental knowledge and academic abilities appropriate for high-level professionals in the field of engineering and the advanced specialized knowledge to command the field of Intelligent and Mechanical Interaction Systems. | ① To possess fundamental knowledge in the field of Systems and Information Engineering.<br>② To possess the mathematical knowledge and abilities widely used in the field of Intelligent and Mechanical Interaction Systems.<br>③ To possess the advanced specialized knowledge needed to command the field of Intelligent and Mechanical Interaction Systems. |
| 8. Ethical skills: Ability to build an ethical view and ethics awareness appropriate for highly skilled professionals in the field of engineering.   | ① To understand and comply with research and engineering ethics.<br>② To obtain ethical knowledge of research involving human subjects and to understand and implement the procedures necessary for such research.   |

#### Dissertation evaluation criteria

A thesis is accepted if it satisfies all the following criteria.

##### <Criteria for thesis examination>

1. The dissertation should describe the significance and positioning of the research in the engineering field and should be based on the understanding of previous research in related fields.
2. The dissertation should contain original research outcomes that contribute to the development of the engineering field, and should be suitable for publication at academic conferences.
3. The reliability of the research results should be verified.
4. The research results should be appropriately discussed, and valid conclusions should be drawn from the discussions.
5. The background, purpose, methods, results, discussions, and conclusions of the dissertation should be summarized and organized in a format appropriate for a Master's degree thesis.

##### <Criteria for the final examination>

1. (Generic competencies) The student should have acquired knowledge utilization skills, management skills, communication skills, teamwork skills, and international skills appropriate to those who have completed the Master's Program in Intelligent and Mechanical Interaction Systems.
2. (Research ability) The student should have obtained the ability to set up an appropriate research topic, conduct the research, and produce significant outcomes in the field of Intelligent and Mechanical Interaction Systems.
3. (Specialized knowledge) The student should have obtained fundamental knowledge and academic abilities appropriate for high-level professionals in the field of engineering and advanced specialized knowledge and operational skills in the field of Intelligent and Mechanical Interaction Systems.
4. (Ethical view) The student should have acquired an ethical perspective and ethical knowledge appropriate for high-level professionals in the area of engineering.

<Required standards for thesis submission, the system of review board members, evaluation method, and review items >

The Master's dissertation review board shall consist of one chief reviewer and two or more sub-reviewers who are faculty members of the Graduate School of Systems and Information Engineering degree programs.

However, faculty members of other degree programs or other universities' graduate schools or laboratory researchers can serve as sub-reviewers when required.

The chief reviewer must be the research supervisor of the student. The sub-reviewers must include faculty members from the Graduate School of Systems and Information Engineering degree programs.

The Master's dissertation review board evaluates the thesis following the criteria for degree thesis review to provide a pass/fail judgment. The dissertation will be approved when it is deemed to have reached a Master's dissertation level regarding the five evaluation items described above, including a final (oral) exam in the judgment.

## Curriculum Policy

The curriculum is organized to cultivate high-level professionals who possess the specialized knowledge and research ability needed to identify and solve problems from a wide perspective extending over multiple areas of science and technology. Courses in the Intelligent and Mechanical Interaction Systems are designed to cover system design, human-machine-robot systems, measurement and control engineering, communication systems, as well as a wide range of fundamental knowledge and ethical view in the field of engineering.

Curriculum organization policy	<p>The primary goal of the curriculum is to develop research abilities in the field of Intelligent and Mechanical Interaction Systems. Students gain basic and specialized knowledge, ethical view, and competencies through Major Subjects in the Degree Programs' Common Courses, as well as Major Subjects and Foundation Subjects for Major in the Degree Program's Courses. Whenever needed, the curriculum is supplemented by the Degree Programs' Common Courses, Inter-disciplinary Foundation Courses, and Graduate General Education Courses.</p> <ul style="list-style-type: none"> <li>• Students acquire the ability to implement knowledge mainly through Special Research Courses including: Research in Intelligent and Mechanical Interaction Systems I, II, Seminars (Seminar in Intelligent and Mechanical Interaction Systems I, II), and Collaboratory Research Workshops (Collaboratory Research Workshop in Intelligent and Mechanical Interaction Systems Ia, Ib, IIa, IIb).</li> <li>• Management competences are obtained through Special Research Seminars and Research Proposal Writing Workshops (Research Proposal Writing Workshop in Intelligent and Mechanical Interaction Systems I, II).</li> <li>• Communication competences are trained through Special Research, Seminars, and Research Presentation Workshops (Oral Presentation Workshop in Intelligent and Mechanical Interaction Systems Ia, Ib, IIa, IIb).</li> <li>• Teamwork competences are obtained through Special Research, Research Paper Presentation Workshops, Collaboratory Research Workshops, Laboratory Work (Laboratory Work in Intelligent Interaction Systems a, b, Laboratory Work in Mechanical Interaction Systems), teaching assistant experience, and external activities.</li> <li>• Competence in Internationality is gained mainly through Special Research, TOEIC Exercise (TOEIC Exercise in Intelligent and Mechanical Interaction Systems I, II), and Research Presentations in English.</li> <li>• Research ability is achieved through Special Research, Fundamentals of Intelligent and Mechanical Interaction Systems, Tools and Practices Subjects (Statistical Data Analysis for Intelligent and Mechanical Interaction Systems, Tools and Practices for Intelligent Interaction Systems a, b, Tools and Practices for Mechanical Interaction Systems), Foundation Subjects in Mathematics (Fundamentals of Mathematics in Intelligent and Mechanical Interaction Systems, Fundamental Theory of Intelligent Interaction Systems, Fundamental Mathematical System of Mechanical Interaction Systems), TOEIC Exercise, Laboratory Work, Collaboratory Research Workshops, and Research Proposal Writing Workshops.</li> <li>• Specialized knowledge is accomplished through Special Research, Foundation Subjects in Mathematics, Degree Programs' Common Courses (mainly in the field of Intelligent and Mechanical Interaction Systems), and Collaboratory Research Workshops.</li> <li>• An ethical view is principally gained through Special Research, Fundamentals Subjects, and e-learning courses for ethics.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students of various academic backgrounds focus on taking lectures to gain the fundamental knowledge and skills necessary for conducting research upon enrollment. At the same time, students are guided to learn how to identify socially and academically significant research topics by themselves.</li> <li>• Each student will learn independently more specialized knowledge and skills through courses while working on their research topic.</li> </ul> <p>In addition, by taking advantage of the multiple supervisor system, students will be able to receive guidance and participate in the research seminars of sub-supervisors and develop their abilities to analyze problems from a broader perspective.</p>



	<ul style="list-style-type: none"> <li>• Students are guided to present their research findings in seminars and academic conferences and seek the evaluations of many researchers from an early stage. Such interactions help students improve their presentation and communication abilities and empower them to drive forward their research and gain further advanced specialized knowledge and skills.</li> <li>• Concurrently, each student performs an Achievement Evaluation self-check as needed to encourage the acquisition of lacking knowledge or skills in order to complete the program.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Students will present their research outcomes of the first year in the Seminar in Intelligent and Mechanical Interaction Systems I. Performance evaluation of the students will be conducted based on the presentation.</li> <li>• Students will present the research outcomes that will become the basis of their thesis in the Seminar in Intelligent and Mechanical Interaction Systems II. Performance evaluation of the students will be conducted based on the presentation.</li> <li>• The supervisor of the student will verify the Achievement Evaluation self-check as needed to ensure that the Achievement Evaluation criteria are met.</li> <li>• Achievement Evaluation items are reviewed as the final examination, as a requirement to be awarded the degree. The examination is conducted by the achievement review board, which will confirm the evaluation plan prepared by the student's research supervisor based on the Standards of Achievement Level Assessment.</li> </ul>
Admission Policy	
Desired students	We seek candidates who possess mathematical skills, English language skills, and mathematical thinking ability necessary for learning and researching in the field of Intelligent and Mechanical Interaction Systems. Students are expected to acquire research skills, specialized knowledge, and ethical view appropriate for a Master's degree holder and a researcher or professional in the field of Intelligent and Mechanical Interaction Systems.
Selection policy	<p>The primary policy is to seek widely talented and outstanding applicants, regardless of whether they are from within the university, off-campus, or from the workforce. The selection process considers a variety of candidates through the Entrance Examination by Commendation, the General Entrance Examination, and a Special Selection Process for Working Individuals. The recruitment capacity is divided into multiple entrance examinations conducted within the same academic year.</p> <p>An oral examination is mandatory regardless of the type of entrance examination. In addition to these requirements, submission of the official academic transcripts will be needed for the August selection (General Entrance Examination and Special Selection Process for Working Individuals.). To prove foreign language proficiency, candidates are required to submit the score sheet of English language test (e.g. TOEIC, TOEFL).</p> <ul style="list-style-type: none"> <li>• The Entrance Examination by Commendation (conducted in July) seeks candidates who wish to enroll in the Master's Program in Intelligent and Mechanical Interaction Systems as their first choice, who have excelled academically, and possess the abilities necessary to conduct research in the field of Intelligent and Mechanical Interaction Systems.</li> <li>• The first General Entrance Examination (conducted in August) seeks candidates who possess robust academic abilities in mathematics and English, who have a clear reason for applying to the Master's Program in Intelligent and Mechanical Interaction Systems and excel in the specificity and inspiration with regard to the research plan. In the second general entrance examination (conducted in February), candidates are evaluated based on their graduation research (or equivalent) in addition to the requirements of the first general entrance examination.</li> <li>• The Special Selection Process for Working Individuals (conducted in August and February) evaluates the research or social experience of the candidates in addition to the evaluation items of the entrance examinations. The admission judgment is organized independently from that for the general entrance examination; therefore, the program actively accepts working individuals (or those with social experiences) who possess the motivation and abilities to join the program.</li> </ul>



## Master's Program in Engineering Mechanics and Energy

Name of the degree to be conferred	Master of Engineering
Educational purpose	The Master's Program in Engineering Mechanics and Energy, which help students possess advanced specialized knowledge in engineering areas of machinery, architecture, social infrastructure, energy, aerospace, etc. and also to take a multidisciplinary approach to associated surrounding areas, cultivates researchers and highly specialized professionals capable of proposing their own solution methods for the essential problems that they extract and transmitting their outcomes effectively inside and outside Japan.
Vision of human resources development	He or she should have interests in the areas of engineering such as machinery, architecture, social infrastructure, energy and aerospace and set their sights to be an engineer or researcher who has the fertile minds to contribute to mankind's strides. Furthermore, he or she should be willing to learn to take a multidisciplinary approach to associated surrounding areas in addition to gaining advanced specialized knowledge.

### Diploma Policy

The degree of Master of Engineering is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: Ability to extract problems in the areas of engineering mechanics and energy and propose and carry out solution methods	① If research tasks in the areas of engineering mechanics and energy are appropriately set up ② If the basic skills for conducting research in the areas of engineering mechanics and energy were gained ③ If research is carried out successfully in the areas of engineering mechanics and energy
7. Specialized knowledge: Basic academic abilities, advanced specialized knowledge and command of them in the areas of engineering mechanics and energy	① If the basic specialized knowledge in the areas of systems and information engineering was gained ② If advanced specialized knowledge and command of it in the areas of engineering mechanics and energy were gained

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8. Ethical view: Ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of engineering      If researcher ethics and engineer ethics were understood and adhered by

#### Dissertation evaluation criteria

A thesis is accepted if all of the following evaluation items are proven to be met.

##### <Criteria for degree thesis review>

1. With the review of the research trends and preceding researches in the associated areas, the significance and positioning of the research must be clarified.
2. Original research findings that contribute to engineering strides must be contained.
3. Research findings must be sufficiently verified in reliability.
4. The conclusion of the research must be based on objective evidence and rational deduction.
5. All of the above items must be incorporated with an appropriate thesis structure and unequivocal descriptions.

In addition, the thesis must be accompanied by a theme that accurately explains the thesis content.

##### <Criteria for final exam>

The student is asked to explain his or her degree thesis content, and at his or her explanation, the above criteria 1 to 5 must be confirmed to be met. In addition, the student must have gained the following abilities, knowledge, etc.

1. Competence of knowledge application: Ability to put advanced knowledge to use in society
2. Management competence: Ability to appropriately address challenges from every angle
3. Communication competence: Ability to express expert knowledge accurately and clearly
4. Teamwork competence: Ability to cooperate and actively contribute to the achievement of goals as a team
5. Competence in Internationality: Awareness to contribute to international society
6. Research ability: Ability to extract problems in the areas of engineering mechanics and energy and propose and carry out solution methods
7. Specialized knowledge: Basic academic abilities, advanced specialized knowledge and command of them in the areas of engineering mechanics and energy
8. Ethical view: Ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of engineering

##### <Level standards required for the degree thesis, review board members, review method and review items, etc.>

A master's thesis review board must be organized with one chief reviewer and two or more sub-reviewers who are applicable faculty members of the Degree Programs in Systems and Information Engineering of the Graduate School.

However, where required, faculty members of other Degree Programs or other university graduate schools or laboratory researchers, etc. can serve as sub-reviewers.

The chief reviewer must be the research supervisory faculty member.

The chief reviewer opens a master's thesis review board, and the board reviews the thesis in accordance with the criteria for degree thesis review to judge the acceptance of the thesis.

The thesis passes if approved to be on a master's thesis level in all of the above evaluation items with the final (oral) exam included in the judgment.

#### Curriculum Policy

The curriculum is organized with the objective of fulfilling the Diploma Policy (DP).

More specifically, students deeply learn the foundations and leading-edge technologies in engineering areas of machinery, architecture, social infrastructure, energy, aerospace, etc. and also learn widely in multiple areas in science and technology so that the Program can cultivate human resources who have the big picture in mind that an ordinary vertically-sectioning engineering major would not give.

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Curriculum organization policy	<p>The Master's Program in Engineering Mechanics and Energy organizes Major Subjects and Foundation Subjects for Major in Degree Programs' Common Courses, and Major Subjects and Foundation Subjects for Major in Program subjects.</p> <p>In addition to the required subjects of 12 credits, Foundation Subjects for Major and Major Subjects are organized in the areas of “mechanics, disaster prevention and reliability engineering”, “solid mechanics and materials engineering”, “fluids and environment engineering” and “thermal fluid and energy engineering”. Students need to take 18 credits or more from these subjects.</p> <p>The required Major Subjects serve to cultivate presentation and communication abilities and a wide viewpoint, and from Degree Programs' Common Courses, students learn the foundations and leading-edge technologies of each of the areas.</p> <p>Moreover, to deepen the knowledge about the actual problems in engineering mechanics and energy, the curriculum also organizes the project subjects, which help students understand the process from identifying to solving problems using engineering means and develop means to provide a solution.</p> <p>Students attain the requirements enumerated in DP by incorporating the learning in these subjects and the research of each student's area of expertise into a master's thesis.</p> <p>Note that students are encouraged to take subjects offered in other Degree Programs, Graduate General Education Courses, Inter-disciplinary Foundation Courses, etc. that aim to develop a wider range of knowledge and research ability.</p> <p>(Generic knowledge and ability)</p> <ul style="list-style-type: none"> <li>• Competence of knowledge application is gained through Degree Programs' Common Courses, Program subjects, special researches, special seminars, etc.</li> <li>• Management competence is gained through special researches, special seminars, drawing up master's thesis research plans, etc.</li> <li>• Communication competence is gained through special researches, special seminars, Internship, academic conference presentations, etc..</li> <li>• Teamwork competence is gained through special researches, special seminars, internships, teaching assistant experience, laboratory activities, etc.</li> <li>• Competence in Internationality is gained through special researches, special seminars, internships, EME international seminar series, joint research with foreigners (including international students), international conference presentations, English research paper publication, etc.</li> </ul> <p>(Specialized knowledge and ability)</p> <ul style="list-style-type: none"> <li>• Research ability is gained through special seminars, special researches, academic conference presentations, research paper publication, master's thesis, etc.</li> <li>• Advanced knowledge in the area of expertise is gained through Degree Programs' Common Courses, Program subjects, academic conference presentations, research paper publication, master's thesis, etc.</li> <li>• A cross-disciplinary point of view is gained through Degree Programs' Common Courses and Program subjects, special researches, special seminars, etc.</li> <li>• The ability to extract problems and propose their own solution methods is gained through special seminars, special researches, etc.</li> <li>• The ability to transmit outcomes inside and outside Japan is gained through special seminars, special researches, academic conference presentations, master's thesis, etc.</li> <li>• Ethical view is gained through special seminars, special researches, e-learning for ethics, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students learn in accordance with the curriculum model for subjects.</li> <li>• Each student learns under their initiative for more specialized knowledge and skills through classes, etc. while working on research tasks.</li> <li>• Students set up research tasks in each area of expertise and proceed with a master's thesis research under the advice of supervisory faculty members.</li> <li>• Students are supervised to present obtained research findings in seminars, academic conferences, etc. and to seek the evaluations of many researchers. This helps students improve their presentation and communication abilities and also empowers them to drive forward their research and gain more advanced specialized knowledge and skills.</li> </ul>

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The supervisory and sub-supervisory faculty members check the learning progress of Common Foundation Subjects and Major Subjects.</li> <li>• With Seminar in Engineering Mechanics and Energy I, each student presents the research outcomes of the first year and receives evaluation.</li> <li>• With Seminar in Engineering Mechanics and Energy II, each student determines where the research he or she is working on is positioned, and in addition, each student presents the research outcomes of the second year and receives evaluation.</li> <li>• At the review of degree thesis and the final exam, the student makes a presentation about the thesis content, and the review board evaluates it.</li> </ul>
Admission Policy	
Desired students	We seek potential engineers or researchers with the fertile minds to contribute to mankind's strides, who have an interest in machinery, architecture, social infrastructure, energy, aerospace, and such other engineering areas, based on a bachelor's degree level of sufficient academic abilities in mathematics, physics and English.
Selection policy	<p>The entrance exams are designed to be convenient for those who graduated from other universities, working individuals and international students so that the Program actively accepts outstanding human resources outside Tsukuba.</p> <p>To select out enrollments, diverse candidates are sought through recommendation entrance exam, general entrance exam and special entrance exam for adults or other enrollment selection methods.</p> <p>The opportunity of entrance exam is offered multiple times in the same year with the split of the number of persons admitted.</p> <p>In the general selection process, candidates are evaluated based on the result of oral exam, and the foreign language proficiency proven by the TOEIC official score certificate, the TOEFL official score reports, etc.</p> <p>In the recommendation entrance exam and special entrance exam for adults, candidates are comprehensively evaluated with oral exam results.</p> <ul style="list-style-type: none"> <li>• In the recommendation entrance exam, the candidates must remarkably excel academically and possess the sufficient knowledge and research abilities in the areas of engineering mechanics and energy.</li> <li>• The general entrance exam selects those who possess the basic academic abilities and research abilities that enable the completion of a bachelor's degree program in engineering with honors.</li> <li>• The special entrance exam for adults evaluates the achievements and experiences as an adult member of society in addition to the above basic academic abilities and research abilities.</li> </ul>

## Master's Program in Life Science Innovation (Bioinformatics)

Name of the degree to be conferred	Master of Bioinformatics
Educational purpose	The Master's Program in Life Science Innovation cultivates highly specialized professionals who possess the world's top-class advanced specialized research ability with cross-disciplinary mind from a higher perspective, open up a new strides in life science research using bioresources, and are globally active in the areas of research and development of innovative pharmaceutical products and functional foods and in the areas of their maintenance and administration.
Vision of human resources development	To contribute to solve problems in the global society through a bioinformatics approach, one needs to gain qualities required to be active in the international society, including the communication ability, linguistic skill, the knowledge in the bioinformatics and associated areas, and the abilities to scientifically challenge and break through the problems that should be solved. The Master's Program in Life Science Innovation is designed to cultivate "highly specialized professionals and those who possess the basic abilities for carrying out a master's thesis research with their sights to become a researcher who can practice the process from identifying to solving problems in bioinformatics using their expanded knowledge and skills cultivated for life science and information science" .

### Diploma Policy

The degree of Master of Bioinformatics is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Innovation ability: Ability to open up new developments in the areas of life science	① If the basic concepts about the areas of life science were widely gained and problems are interpreted from a higher perspective ② If one has the motivation to gain new skills and knowledge instead of being bound by one's area of expertise ③ If the social needs in the areas of life science are understood ④ If appropriate research plans are drawn up and carried out to solve bioinformatics issues

7. Specialized knowledge: Advanced knowledge and command of an area of expertise	① If leading-edge specialized knowledge about bioinformatics was gained ② If gained knowledge was put to use to solve issues
8. Advanced practical English: Practical English proficiency that works in the areas of life science	① If an accurate description of one's understandings or opinions about problems in the areas of life science is provided in English ② If written research proposals, reports, etc. are created in English

#### Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree thesis must be the results of work in which the diploma applicant took the initiative and must contain unprecedented research findings that contribute to make strides in the areas of bioinformatics. The degree thesis must be written logically and scientifically and must be constructed in an appropriate format as a degree thesis.

【Review board members】 A thesis is reviewed by an exclusive board formed by one chief reviewer and two or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program.

As the two or more sub-reviewers, one or more faculty members qualified to supervise the research in the Program must be included. The three or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members.

In addition, as the three or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain their degree thesis content and then questioned by exclusive board members about what they have explained. During this examination, in which the applicant is required to make a presentation about their degree thesis logically and scientifically, the applicant is evaluated to see if they can convince the reviewers sufficiently by answering the reviewers' questions using the specialized knowledge of the areas of bioinformatics with insight.

#### Curriculum Policy

Under the education and research environment where there is the active participation by not only the faculty members of Tsukuba but also by collaborative graduate school faculty members from the research institutes or such which belong to the Tsukuba Life Science Promotion Association, students learn about unsolved issues of the society and get engaged in research activities to pursue to open up new strides in the areas of bioinformatics. The Master's Program in Life Science Innovation, whose purpose is to cultivate globally active highly specialized professionals, offers all lectures in English and organizes lectures and seminars taught by researchers who are active in the front lines and belong to overseas research institutes. To cultivate the ability to have the big picture in mind from a cross-disciplinary perspective, students benefit from the General Foundation Subjects which cover all-around basic concepts in the areas of life science. As part of the career training, the curriculum includes internship subjects and other subjects such as for learning the operations of research organizations, etc. Moreover, Major Subjects for cultivating the expert abilities in bioinformatics are also organized.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The curriculum in the bioinformatics realms are composed of Major Subjects, the General Foundation Subjects shared by the six realms of the Master's Program in Life Science Innovation (Disease Mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics, Biomolecular Engineering), and Graduate General Education Courses. With the Major Subjects, in addition to the lectures for cultivating the expert abilities in bioinformatics, students are supervised for bioinformatics research in the laboratory of each student.</li> <li>• Competence of knowledge application is gained with master's thesis creation, etc.</li> <li>• Management competence is gained with "Regulatory Science", etc.</li> <li>• Communication competence is gained with "Master's Research in Life Science Innovation", etc.</li> <li>• Teamwork competence is gained with "Team Learning in Life Science Innovation (Basic)", etc.</li> <li>• Competence in Internationality is gained with "Master's Life Science Innovation Seminar", etc.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Innovation ability is gained with Major Subjects, “Master's Research in Life Science Innovation” , etc.</li> <li>• Specialized knowledge is gained with Major Subjects, etc.</li> <li>• Advanced practical English is gained with General Foundation Subjects, Major Subjects, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• After learning how to gather information and understanding social needs under the supervision of supervisory faculty members, students draw up and carry out an appropriate research plan for solving bioinformatics issues and round up the results into research outcomes.</li> <li>• Students acquire English presentation skills in the process of presenting their research outcomes at the T-LSI student workshop and other events.</li> <li>• Through General Foundation Subjects and Graduate General Education Courses, students widely gain the basic concepts in the areas of life science and improve communication ability in English in order to be capable of using knowledge not bound by one's area of expertise.</li> <li>• Practical abilities as working individuals are cultivated through internships.</li> <li>• Specialized knowledge is gained through Major Subjects.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the interim evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for master's thesis creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Four months before the expected completion of the Program, the final evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered four months before the expected completion of the Program, the preliminary review for the master's thesis is conducted by the chief reviewer and two sub-reviewers.</li> <li>• At the final exam which is administered two months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and two sub-reviewers based on the presentation and question-and-answer session for the master's thesis content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who possess the motivation to make innovations in the areas of bioinformatics and have the sufficient qualities to gain the specialized knowledge necessary to attain such innovations, and advanced practical English.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess bachelor's degree level knowledge necessary for learning in the Master's Program in Life Science Innovation and the ability to write about research backgrounds and future prospects in English.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for learning in the Master's Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation to make innovations in the areas of bioinformatics and the ability to explain and debate in English.</li> </ul>

## Doctoral Program in Policy and Planning Sciences

Name of the degree to be conferred	Doctor of Philosophy in Policy and Planning Sciences
Educational purpose	The Doctoral Program in Policy and Planning Sciences cultivates “problem identify-and-solve type human resources in engineering for future visions” (university faculty members, highly specialized professionals, researchers, etc.) who possess the knowledge about the entire three areas of assets/resources design (finance/optimization), spatial/environmental design (urban planning) and organizational/behavioral design (behavioral science) as well as the engineering skills worthy of being called those of an expert in at least one area and can complete the process of identifying and solving problems in their own right and produce research outcomes that are highly appraised internationally.
Vision of human resources development	He or she should have the “problem-solving ability” founded on social knowledge, logical thinking ability, and various kinds of engineering skills and the “problem-identifying ability” which can objectify more abstract events as a “problem identify-and-solve type human resource in engineering for future visions” and should be capable of being active as an engineering, economic or interdisciplinary university faculty member, governmental organization employee, international public employee, IT engineer, production planning/marketing engineer, government-funded bank, financial analyst, consultant, think tank researcher, urban planning or community development consultant, construction or real estate project/development planner, town architect, public employee in national or municipal planning departments, etc.

### Diploma Policy

The degree of Doctor of Philosophy in Policy and Planning Sciences is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?

6. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of policy and planning sciences	① If research tasks in the areas of policy and planning sciences are appropriately set up and the advanced skills for carrying out such research were gained ② If leading-edge research that produces ingenious outcomes in the areas of policy and planning sciences is carried out ③ If research outcomes are presented and debated in English in international conferences, etc.
7. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of policy and planning sciences	① Understanding of social phenomena (Find): If social phenomena are deductively understood based on the advanced knowledge about basic theories and rules of thumb in the areas of policy and planning sciences ② Data analysis (Analyze): If social phenomena are inductively understood based on data analysis ③ Institution design (Plan): If institutions for social reforms are designed based on the understanding of social phenomena ④ Experiment and advocacy (Do): If concrete advocacy or social experiment is done based on a designed institution ⑤ Evaluation and measurement (See): If results of social experiment or advocacies are critically measured and evaluated in one's own right to deepen the understanding of social phenomena
8. Ethical view: Ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of policy and planning sciences	① If researcher ethics and engineer ethics were understood and adhered by ② If human research ethics as well as formalities and/or procedures necessary for research were understood

#### Dissertation evaluation criteria

A thesis is accepted if all of the following evaluation items are proven to be met.

##### <Criteria for degree thesis review>

1. Significance of research theme: If the problems concerning social phenomena identified and argued in the thesis for their solutions are found as academically significant or significant enough to lead to social contributions
2. Understanding of preceding researches: If existing theories and researches associated with one's research theme are extensively and accurately grasped and objectively appraised. If, based on that understanding, the research deeply debates issues, including as to the unique contributions that the research could attain to the literatures or as to the contribution or value that the research could have toward the society, economy, urban environments, business organizations and the workers there.
3. Understanding and appropriateness of research methods: If the methods (demonstration, experiment, simulation, investigation, survey and other design and data analysis, etc.) used to pursue the research theme are deeply understood and the skills to use them well in order to pursue the research theme were sufficiently gained
4. Appropriateness of presentation and interpretation of research results: If the skill to academically present research results and the thinking ability to interpret them deductively or inductively are possessed
5. Research overall: If the research is academically contributory and if the research successfully has developed a significant debate toward future research trends as results of an overview of steps 1 to 4 above and the objective evaluation of strengths and weaknesses of the research
6. Originality: If the research is worthy of being called an original research that adds new knowledge to existing findings
7. Format of thesis: If the appropriate level as an academic paper is reached in terms of the appropriateness of sentence expressions, the presentation and citation of graphics and literatures and the creation of literature list in the thesis

##### <Criteria for final exam>

1. **【Research ability】** If leading-edge research tasks are set up and research plans are independently carried out based on the latest specialized knowledge in the areas of policy and planning sciences
2. **【Specialized knowledge】** If the leading-edge advanced specialized knowledge and command of the areas of policy and planning sciences were gained
3. **【Ethical view】** If the ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of policy and planning sciences were gained

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<Level standards required for the degree thesis, review board members, review method and review items, etc.>

A doctoral dissertation review board must be formed by one chief reviewer and three or more sub-reviewers.

The chief reviewer and two or more sub-reviewers must be applicable faculty members of the Degree Programs in Systems and Information Engineering of the Graduate School, and in addition, one or more of the sub-reviewers must be selected from those who do not belong to the Doctoral Program in Policy and Planning Sciences.

The chief reviewer opens a doctoral dissertation review board, and the board reviews the dissertation in accordance with the criteria for degree dissertation review to judge the acceptance of the dissertation.

The dissertation passes if approved to be on a doctoral dissertation level in all of the above evaluation items 1 to 7 with the final (oral) exam included in the judgment.

## Curriculum Policy

To develop the “problem-identifying ability” that can identify problems and abstract and formulate them as a quality possessed by “problem identify-and-solve type human resources in engineering for future visions, the curriculum is organized on the three pillars of ① assets/resources design (finance/optimization), ② spatial/environmental design (urban planning) and ③ organizational/behavioral design (behavioral science). Thus, the Program provides students with the specialized knowledge and research abilities related to these pillars as well as a wide range of basic knowledge and ethical view in the areas of engineering and cultivates such highly specialized professionals who can identify and solve problems from a wide perspective extending over multiple areas in science and technology.

- A wide range of knowledge is gained with Graduate General Education Courses, Inter-disciplinary Foundation Courses and Degree Programs’ Common Courses.
- Multifaceted research supervision with the use of research units, etc.
- A management ability development program, which helps students to develop the ability to set up research tasks in their own right and build a research method, is offered to support the gain of problem-identifying ability.

Besides the standard 3-year course of study, the Program includes various alternative plans such as the early completion course which permits finishing in 1 year, an extended 5-year course of studies, as well as the S Course (taking 3 years combined with the Master’s Program), the A Course (the same but taking 4 years), and the standard 5-year course.

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Curriculum organization policy	<p>Students gain (generic knowledge and ability) as follows:</p> <ul style="list-style-type: none"><li>• Generic knowledge is gained through Major Subjects (elective), Degree Programs’ Common Courses (Master’s Program), Graduate General Education Courses and Inter-disciplinary Foundation Courses.</li><li>• Competence of knowledge creation is gained through “Special Doctoral Seminar in Policy and Planning Sciences I to IV” and “Special Doctoral Research Work in Policy and Planning Sciences I and II” , in which students directly work on research.</li><li>• Management competence, Communication competence and Teamwork competence are gained through “Internship in Policy and Planning Sciences” and “Facilitation Training Program in Policy and Planning Sciences” subjects.</li><li>• Competence in Internationality is gained through “Facilitation Training Program in Policy and Planning Sciences” subjects, in which students learn with the active learning method as group work with international students, and “Special Doctoral Seminar in Policy and Planning Sciences I to IV” and “Special Doctoral Research Work in Policy and Planning Sciences I and II” in which students directly work on research on the premises of international research circumstances.</li></ul> <p>Students gain (specialized knowledge and ability) as follows</p> <p>Research ability is gained through “Special Doctoral Seminar in Policy and Planning Sciences” , “Special Doctoral Research Work in Policy and Planning Sciences” , etc.</p> <ul style="list-style-type: none"><li>• The specialized knowledge necessary for research is gained through Degree Programs’ Common Courses such as “Special Lecture on Policy and Planning Sciences I to II” which pass on the latest, advanced specialized knowledge about policy and planning sciences.</li><li>• The ethical view particularly necessary for the activities in the society is gained through “Internship in Policy and Planning Sciences” and “Facilitation Training Program in Policy and Planning Sciences” subjects, and the ethical view for research is gained through “Special Doctoral Seminar in Policy and Planning Sciences I to IV” and “Special Doctoral Research Work in Policy and Planning Sciences I and II” in which students directly work on research.</li></ul>
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Learning methods • Processes	<ul style="list-style-type: none"> <li>• By reference to model ①: Graduate school faculty member and model ②: Think tank chief researcher, students take Major Subjects (6 credits or more) in mainly the first year.</li> <li>• Concurrently with the above, doctoral dissertations are supervised in a multifaceted way by supervisory faculty members and researcher groups such as a research unit, and under this system of supervision, students proceed with conducting research on their respective research tasks and take 12 credits of specialized subjects concerning the writing of dissertations.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The progress of learning and of the writing of doctoral dissertation is examined and evaluated by the advisory group at the four stages: Special Doctoral Seminar in Policy and Planning Sciences I (typically in spring semester of the first year), Special Doctoral Seminar in Policy and Planning Sciences II (typically in fall semester of the first year), Special Doctoral Seminar in Policy and Planning Sciences III (typically in spring semester of the second year) and Special Doctoral Seminar in Policy and Planning Sciences IV (typically in fall semester of the second year).</li> <li>• Further, diploma examination is administered through two stages: preliminary review with Special Doctoral Research Work in Policy and Planning Sciences I by the dissertation review board, and the final exam with Special Doctoral Research Work in Policy and Planning Sciences II.</li> </ul>
Admission Policy	
Desired students	<p>We seek candidates who possess engineering fundamental abilities (mathematical or logical thinking abilities), the knowledge of the entire three areas of assets/resources design (finance/optimization), spatial/environmental design (urban planning) and organizational/behavioral design (behavioral science), and the specialized knowledge about one of these areas as well as the problem-solving ability as equivalent to those who have completed a master's degree program.</p>
Selection policy	<ul style="list-style-type: none"> <li>• To accept outstanding and diverse human resources inside and outside Tsukuba, candidates are solicited through multiple entrance exam means including internal assessment selection, general entrance exam and special entrance exam for adults at different timings and different numbers of students admitted.</li> <li>• Irrespective of the type of entrance exam, an oral exam is mandatorily required.</li> <li>• The internal assessment selection selects those who are expected to complete the Master's Program in Policy and Planning Sciences, who possess high fundamental abilities and research abilities.</li> <li>• In the general entrance exam, the potential students to be selected out must possess certain fundamental abilities and research abilities.</li> <li>• The special entrance exam for adults evaluates the achievements and experiences as an adult member of society in addition to fundamental abilities and research abilities.</li> </ul>



## Doctoral Program in Risk and Resilience Engineering

Name of the degree to be conferred	Doctor of Philosophy in Engineering
Educational purpose	<p>In these days of destabilized social conditions, one of the most important issues is to reach for secure and safe lands, districts, economy, and information society that have both “strength” and “flexibility” based on appropriate risk management, that is, a resilient system of society.</p> <p>The Doctoral Program in Risk and Resilience Engineering seeks to cultivate academically global human resources who possess the research abilities, advanced skills and practical abilities based on deep theoretical foundations and the “ability to be flexible to unforeseen and changing circumstances from an engineering point of view, keep providing the required functionalities, and get them recovered”, which is in other words, the advanced skills that can put the results of risks analyzed and evaluated by engineering methods into use to reach for a resilient society and who can pass along the outcomes of education and research to the society with a view focused on actual social problems.</p>
Vision of human resources development	<p>He or she should possess, based on the high fundamental engineering ability, the theoretical foundations and advanced associated information processing techniques for risk and resilience analysis and evaluation, and by adapting them from a wide comprehensive point of view to the real world’s problems, which are the subject of risk and resilience engineering, he or she should be able to produce and develop concrete methods for identifying a problem and providing a solution using engineering means while fulfilling his or her given role shares in a research team or research project by bringing out high communication ability and taking a leadership position, and in addition can be active also in international scenes through their high presentation ability.</p>

### Diploma Policy

The degree of Doctor of Philosophy in Engineering is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?



5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Fundamental engineering ability: Knowledge and academic abilities appropriate to researchers or highly specialized professionals in the areas of engineering	① If a wide range of basic knowledge in the areas of risk and resilience engineering was gained ② If the high academic abilities as highly specialized professionals in the areas of risk and resilience engineering were gained ③ If academic outcomes were attained in the areas of risk and resilience engineering
7. Knowledge of theoretical foundations and associated techniques: Knowledge of the theoretical foundations for risk and resilience analysis and evaluation based on the fundamental engineering ability, and associated advanced information processing techniques	① If the theoretical foundations for analyzing risks potential in complex phenomena and evaluating them from a resilience viewpoint were gained ② If the advanced information processing techniques for analyzing risks potential in complex phenomena and evaluating them from a resilience viewpoint were gained
8. Knowledge about problems in reality: Deep knowledge about problems in reality that involve risk and resilience engineering	If the deep knowledge about the diverse problems in reality, to which risk and resilience engineering is applied, and the ability to evaluate research tasks in a variety realms were gained
9. Ability to have the big picture in mind from a wide perspective: Ability to interpret, from a wide comprehensive perspective, the issues to which risk and resilience engineering is applied	If a wide and comprehensive perspective for interpreting the issues, to which risk and resilience engineering is applied, was gained
10. Ability to identify and solve problems: Ability to deeply understand the process from identifying to solving a risk-resilience problem using engineering means and produce and develop the concrete means to provide a solution	① If problems are led to concrete solutions using an ingenious method with a view focused on actual social problems and with a wide understanding of the application of specialized skill—— Ingenious solution process starting from problem identification ② If the skill of conducting a research project and rounding it up into research outcomes was gained ③ If researcher ethics and engineer ethics were well understood and adhered by
11. Global communication ability: Ability to fulfill one's given role shares, bring out high communication ability and take a leadership position in a research team or research project	① If the presentations about one's research and specialized knowledge are made with sufficient linguistic skill ② If capable of committing oneself to group research activities as an advisor and capable of promoting communication among students that include oneself while taking a leadership position

## Dissertation evaluation criteria

A thesis is accepted if all of the following evaluation items are proven to be met.

<Criteria for degree thesis review>

1. The thesis must be the results of the research in which the diploma applicant took the initiative in accordance with research ethics.
2. The research must contain novelty.
3. The usefulness that contributes to make strides in risk and resilience engineering or associated areas must be contained.
4. The dissertation must be appropriately constructed and the content must be correct.
  - (1) The theme of the thesis must be appropriate.
  - (2) Preceding researches are accurately investigated and the positioning of the research must be fully discussed.
  - (3) The purposes of research must be clearly and concretely described.
  - (4) The methods of research must accord with the purposes and be clearly and concretely described.
  - (5) The results must be accurately and clearly drawn and be assured in reliability.
  - (6) Discussion must be logically developed based on results.
  - (7) The conclusion must be clear and provide a description about social significance.
  - (8) Citations must be appropriate.

<Criteria for final exam>

The evaluation is based on how the question-and-answer session goes for the explanation of the degree thesis and related matters and the results of achievement evaluation.

<Level standards required for the degree thesis, review board members, review method and review items, etc.>

The evaluation of degree thesis requires the approval of a degree dissertation review board formed by one chief reviewer and four or more sub-reviewers.

The reviewers must be doctor's degree holders.

The chief reviewer and two or more sub-reviewers must be faculty members of Degree Programs in Systems and Information Engineering. One or more sub-reviewers must be selected from those who do not belong to the Doctoral Program in Risk and Resilience Engineering. Opening a doctoral dissertation review board, the chief reviewer evaluates the dissertation in accordance with the criteria for degree dissertation review and judges the acceptance of the dissertation after having obtained approval of the board.

The dissertation passes if approved to be on a doctoral dissertation level in all of the above evaluation items 1 to 4 with the final exam included in the judgment.

## Curriculum Policy

To attain the Diploma Policy requirements, the curriculum is organized to cultivate students who possess the advanced skills that can put the results of risks analyzed and evaluated by engineering methods into use to reach for a resilient society, can pass along the outcomes of education and research to the society with a view focused on actual social problems, and possess the research abilities, advanced skills and practical abilities based on deep theoretical foundations.

Curriculum  
organization policy

To attain the Diploma Policy requirements, the curriculum places emphasis on the two subjects of special seminars and special researches in the Doctoral Program.

In addition, students take other specified lecture subjects to deepen the knowledge about problems in reality by more comprehensively integrating the perspective to the complex social problems that involve risks. Students attain the requirements enumerated in DP by incorporating the learning in these subjects and the research of each student's area of expertise into a doctoral dissertation.

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Learning methods •  
Processes

The requirements enumerated in Diploma Policy are attained as follows.

1. “Fundamental engineering ability”, which is covered in almost all of the subjects, is gained through the subjects provided in the Degree Program. In addition, a wider range of learning is possible with Inter-disciplinary Foundation Courses.
  2. “Theoretical foundations and associated techniques” which is covered in almost all of the subjects, is gained through the subjects provided in the Degree Program. Particularly, special researches in the Doctoral Program help students gain more deeply the theoretical foundations and information processing techniques for analyzing risks potential in complex phenomena and evaluating them from a resilience viewpoint.
  3. “Problems in reality” which is covered in almost all of the subjects, is learned particularly through Major Subjects. Particularly, special seminars in the Doctoral Program, in which students learn and critically appraise research presentations in various realms to gain the knowledge about diverse problems in reality, help students gain this area of ability more deeply.
  4. The abilities for “wide perspective”, which are covered in almost all of the subjects, are gained particularly through the subjects taught by faculty members in the Cooperative Graduate School System with companies, research institutes, etc.  
In addition, Topics in Risk and Resilience Engineering in Doctoral Programs of different areas of expertise and not just one’s own area, and the internship subjects taught by faculty members in the Cooperative Graduate School System help students gain this area of ability more deeply.
  5. The abilities to “identify and solve problems” are gained through Special Doctoral Research Work, in which each student carries out their respective research with deep investigation under supervisory faculty members, and the internship subjects taught by faculty members in the Cooperative Graduate School System with companies, research institutes, etc.  
Particularly, Advanced Research help students understand widely the process of identifying problems to solving them ingeniously and gain the skill of conducting a research project and rounding it up into research outcomes.
  6. Through special researches in the Doctoral Program, students gain the “global communication” ability, which is the “ability to fulfill one’s given role shares, bring out high communication ability and take a leadership position in a research team or research project” .  
This ability can be more deeply gained through Advanced Group Project Based Learning in Risk and Resilience Engineering, in which students commit themselves to group research activities as an advisor of each group, in “Group Project Based Learning in Risk and Resilience Engineering”, in which students in the Master’s Program are divided into groups and assigned to work on a theme.  
Furthermore, serving as a chairperson in special seminars in the Doctoral Program, the ability to promote communication among students that include oneself while taking a leadership position is cultivated. Those students who pursue to become university faculty members can use these subjects as a PFP (Preparing Future Professionals) program.  
The “ability to be active in international scenes through their high presentation ability”, which is part of “global communication”, is gained through special seminars in the Doctoral Program, in which students are mandatorily required to make presentations in the foreign language with regard to their research and learning.  
In addition, this ability can be more deeply gained through special researches in the Doctoral Program, where students carry out their research and present the outcomes at international conferences, etc. under the supervision of supervisory faculty members.  
The achievement progress of the requirements is periodically checked in accordance with the achievement evaluation scheme described below, and along the degree of achievement, the student receives appropriate advice from the faculty member, who is the achievement evaluation board member responsible for the student.
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Evaluation of learning outcomes

The quality of education is assured with the following system of achievement evaluation. Achievements are evaluated for the following six achievement evaluation items.

- ① Fundamentals of engineering: Basic knowledge and academic skills of researchers or advanced professionals in engineering were gained
- ② Knowledge of basic theories and related skills: Knowledge of theoretical foundations for risk and resilience analysis and assessment based on fundamentals of engineering, and knowledge of advanced information processing technologies related to risk and resilience analysis and assessment were gained
- ③ Knowledge of issues in the real world: In-depth knowledge of real-world issues covered by risk and resilience engineering was gained
- ④ Broad perspective overlooking circumstance: Ability to see the subject of risk and resilience engineering from a broad and comprehensive perspective was gained
- ⑤ Abilities of problem setting and solving: Ability to understand the process from setting up problems to solving them by engineering means in depth and to devise and develop specific solutions for problems related to risk and resilience were gained
- ⑥ Global communication ability: Ability to fulfill assigned roles and take leadership in a research team or research project with high communication skills was gained

Achievements are evaluated by the achievement evaluation board, which is administered with an interview between each student and three or more faculty members twice every academic year.

The feedback on the evaluation results are given to students for the use of improving subsequent learning. The requirement to pass the final exam is the approval as appropriate to a doctoral degree in engineering in all items at the final achievement evaluation.

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Admission Policy

Desired students

We seek candidates who are interested in widely understanding risks and their countermeasures and want to meet the challenge of risk and resilience in elucidating and evaluating problems in reality using their cross-disciplinary ability to have the big picture in mind from an interdisciplinary perspective.

We welcome those who possess the basic abilities in the mathematics and information processing skills, which serve as the foundation of engineering, and on the other side, have the desire to improve themselves in the linguistic skill, communications and presentation abilities to be internationally active in the actual world as well as the motivation in passing along their outcomes to the society through industry-academia collaboration, social collaboration, education and research outcomes, etc.

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Selection policy

To select out enrollments, diverse candidates are sought through the general entrance exam, special entrance exam for adults or other enrollment selection methods.

The opportunity of entrance exam is offered multiple times in the same year with the split of the number of persons admitted.

For the selection of enrollment, candidates are required to take an oral exam which includes a presentation, and questions and answers. In addition, within the special entrance exam for adults, the Program offers a system of both day and night courses to allow working individuals to take courses at the Tokyo campus while keeping their jobs (day and night courses program for working individuals).

- The internal assessment selection selects those who are expected to complete the Master's Program in Risk and Resilience Engineering, who possess especially high fundamental abilities and research abilities.
- In the general entrance exam, the potential students to be selected out must possess certain fundamental abilities and research abilities.
- The special entrance exam for adults evaluates the achievements and experiences as an adult member of society in addition to fundamental abilities and research abilities.

## Doctoral Program in Computer Science

Name of the degree to be conferred	Doctor of Philosophy in Engineering
Educational purpose	The Doctoral Program in Computer Science organizes its education and research to cultivate human resources with the deep expertise in diverse areas of computer science and with the knowledge, specialized research ability and practical work ability that work on an international level. Graduates through the program should possess both ingenuity and flexibility and can use all of these to contribute to solving the problems in a specific field by informatics approaches.
Vision of human resources development	To develop researchers and highly skilled professionals who possesses specialized knowledge and leading-edge engineering abilities in a wide range of areas in computer science as well as the high communication and presentation abilities for his or her area of expertise and the advanced abilities for carrying out research and development and can apply these knowledge and abilities to lead various problems in the real world to reach solutions.
Diploma Policy	
The degree of Doctor of Philosophy in Engineering is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research ability: Ability to identify new tasks in new areas in one's own right, then independently draw up a plan to solve them and steadily execute it with the backup of leading-edge advanced specialized knowledge and skills in a wide range of areas in computer science	① Whether new problems are identified in the areas of computer science, and whether appropriate research tasks are set up for them ② Whether advanced specialized skills for conducting research and development in the areas of computer science are gained ③ Whether research plans are drawn up for new types of problems in the areas of computer science and steadily carried out with effective outcomes ④ Whether English is used in the presentations and discussions of research outcomes in international scenes.

7. Specialized knowledge: Leading-edge advanced specialized knowledge and skills in a wide range of areas in computer science, and the ability to use them	① Whether the specialized knowledge in the areas of systems and information engineering was gained ② Whether the leading-edge specialized knowledge and skills in the areas of computer science were gained ③ Whether the specialized knowledge and skills that one possesses are appropriately used
8. Ethical view: Refined ethical view in a wide range of areas in computer science	① Whether researcher ethics and engineer ethics were understood and adhered by. ② Whether human research ethics as well as formalities and/or procedures necessary for research were understood. ③ Whether one has deep interests and knowledge about ethical problems in the areas of computer science.

#### Dissertation evaluation criteria

A thesis is accepted if all of the following evaluation standards are met.

<Criteria for degree thesis review>

1. Whether the dissertation provides a clear description of the significance and positioning of the research based on the understanding of international research trends and previous studies in the areas of computer science
2. Whether the novelty, creativity and applied values that contribute to make academic and social strides in the areas of computer science are sufficiently contained in the research outcomes well enough to be presented as an academic paper
3. Whether the research results are adequately discussed and sufficiently verified in reliability
4. Whether research backgrounds, purposes, methods, results, discussions and the line of reasoning are developed logically and demonstratively
5. Whether the dissertation is organized in a format and style of presentation appropriate as a doctoral dissertation with sentence expressions appropriately used and literatures, graphics, etc. correctly cited with proper referencing.

<Criteria for final exam>

【Research ability】 Whether leading-edge specialized knowledge and skills in a wide range of areas in computer science were gained

【Research ability】 Whether a new area of tasks was identified in one's own right, and whether a plan to solve them was drawn up and executed steadily

【Specialized knowledge】 Whether the advanced specialized knowledge and skills in a wide range of areas in computer science, and the ability to use them were gained

【Ethical view】 Whether the refined ethical view in a wide range of areas in computer science was gained

【Communication competence】 Whether the ability to express things accurately and clearly and make advanced debates of expertise was gained

<Level standards required for the degree thesis, review board members, review method and review items, etc.>

A doctoral dissertation review board must be formed by five or more reviewers, with at least three being professors.

The chief reviewer and two or more sub-reviewers must be faculty members of the Degree Programs in Systems and Information Engineering.

The chief reviewer must be the professor (research supervisor). Note that the chief reviewer and sub-reviewers must be not formed by faculty members only from the Program in Computer Science but must include at least one external reviewer or reviewer from other programs.

The chief reviewer opens a doctoral dissertation review board, and the board reviews the dissertation in accordance with the criteria for degree dissertation review to judge the acceptance of the dissertation.

The dissertation passes if approved to be on a doctoral dissertation level in all of the above evaluation items 1 to 5 with the final (oral) exam included in the judgement.



## Curriculum Policy

The curriculum is organized to provide students with the specialized knowledge and research ability in mathematical informatics engineering, intelligence software, software systems, computer engineering, media engineering and intelligence/information engineering, which cover from the basal technologies intended for the generation, processing and utilization of “information”, such as computers, networks and security, to the applied technologies, such as web applications, user interfaces, speech recognition/image analysis and high-performance computing. In addition, students gain a wide range of basic knowledge and ethical view in the areas of engineering. The Program also offers research supervision toward the creation of a doctoral dissertation and thereby cultivates human resources who can identify and solve problems from a wide perspective extending over multiple areas in science and technology.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The Doctoral Program in Computer Science organizes “required subjects” and “Major Subjects”.</li> <li>• With “required subjects”, students are engaged in research activities under the advice of supervisors and conduct surveys, etc. of associated areas. With these research activities, students gain Competence of knowledge application, Management competence, Communication competence, Teamwork competence, fundamental engineering ability, the knowledge and skills in the areas of informatics, inquisitive quality for the area of expertise, presentation ability, and the knowledge and skills in science and technology.</li> <li>• With “research seminar”, students gain communication skills, Competence in Internationality and develop presentation abilities through research presentations and debates in English.</li> <li>• With “Research Internship I/II”, students gain Management competence, Communication competence, Leadership competence, Competence in Internationality, the knowledge and skills in the areas of informatics, inquisitive quality for the area of expertise and presentation ability by being engaged in research activities at other universities, laboratories, etc.</li> <li>• Deep specialized knowledge and engineering abilities in diverse areas are gained through “Graduate General Education Courses”, “Interdisciplinary Foundation Courses”, “Degree Programs’ Common Courses”, etc.</li> <li>• Management competence is gained through TA (Teaching Assistant) and TF (Teaching Fellow) activities, supervising the research activities of junior students in their laboratories.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Each student sets up research tasks in their respective areas of expertise and proceeds with conducting research under the advice of supervisors.</li> <li>• With the research seminar, each student makes a presentation of interim results of their research in English and receives feedback from participating faculty members and students. Through this exercise, students get their research brushed up and improve their skills of presenting and debating in English.</li> <li>• To show research findings and to hone the skills of writing papers and making presentations, students publish their research outcomes to a domestic or overseas peer-reviewed journal or an international peer-reviewed conference.</li> <li>• “Research Internship I/II”, through which students are engaged in research work at a company, university, research institute, etc., gives students opportunities to gain research experience from different environments while improving their communications skills, etc.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Learning outcomes are evaluated based on the “achievement evaluation sheet”.</li> <li>• During April of the planned completion year, students check the achievement evaluation sheet together with supervisors to check the achievements at that point of time.</li> <li>• In the required subjects “Research in Computer Science” and “Computer Science Seminar A”, students have their research progress checked by supervisors.</li> <li>• In the final exam, the achievements are examined in accordance with the separately defined final thesis examination criteria, and the review board checks the achievement evaluation sheet.</li> </ul>

## Admission Policy

Desired students	The Doctoral Program in Computer Science widely seeks candidates from inside and outside Japan. The candidates should possess the specialized knowledge and engineering skills in the areas of information science, and have a great interest in any of the problem realms in engineering science and a keen desire to gain the specialized knowledge, engineering skills, specialized research and development abilities and practical abilities.
Selection policy	<ul style="list-style-type: none"><li>• To accept outstanding and diverse human resources inside and outside Tsukuba, candidates are solicited through multiple entrance exam channels including internal assessment selection, general entrance exam and special selection of working students at different timings and different numbers of students admitted.</li><li>• Irrespective of the type of entrance exam, an oral exam is mandatory.</li><li>• The internal assessment selection selects those who are expected to complete the Master's Program in Computer Science and who possess high fundamental abilities and academic research abilities.</li><li>• In the general entrance exam, the potential students to be selected out must possess certain fundamental abilities and research abilities.</li><li>• The special selection for working students evaluates the achievements and experiences as an adult member of society in addition to fundamental abilities and academic research abilities.</li></ul>

## Doctoral Program in Intelligent and Mechanical Interaction Systems

Name of the degree to be conferred	Doctor of Philosophy in Engineering
Educational purpose	<p>The Doctoral Program in Intelligent and Mechanical Interaction Systems investigates engineering systems based on mathematical models representing the complex phenomena of humans, society, and nature, as well as theories in various fields such as mathematics, physics, and informatics working in harmony to contribute to the real world. This program cultivates high-level researchers and professionals capable of discovering and solving relevant problems from a broad perspective. Such individuals are characterized for possessing extensive knowledge, a robust ethical view, and advanced research skills in the field of engineering.</p>
Vision of human resources development	<p>Students develop advanced knowledge and skills in the field of Intelligent and Mechanical Interaction Systems, in addition to a wide range of engineering knowledge, academic abilities, and an ethical perspective appropriate for high-level researchers and professionals in the field of engineering.</p> <p>Therefore, students will be able to contribute to the development of academia and society by conducting cutting-edge research and producing original results that target and solve relevant problems in the field of engineering.</p>
Diploma Policy	
<p>The degree of Doctor of Philosophy in Engineering is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.</p>	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?

6. Research skills: The ability to set cutting-edge research themes in the field of Intelligent and Mechanical Interaction Systems, conduct the research independently, produce original results, and present them internationally.	① To be able to set a cutting-edge research topic in the field of Intelligent and Mechanical Interaction Systems and develop advanced skills for carrying out the research. ② To be able to carry out cutting-edge research and produce original outcomes in the field of Intelligent and Mechanical Interaction Systems. ③ To be able to present and discuss research outcomes in English at international conferences.
7. Specialized knowledge skills: The ability to develop the academic skills suitable for high-level researchers and professionals in the field of engineering, in addition to advanced knowledge and operational capability in the areas of Intelligent and Mechanical Interaction Systems	① To possess a wide range of expertise in the field of Systems and Information Engineering. ② To acquire advanced and specialized knowledge in the areas of Intelligent and Mechanical Interaction Systems, and to apply such knowledge for research and problem-solving.
8. Ethical skills: Ability to build an ethical and psychological view appropriate for high-level researchers and professionals in the field of engineering.	① To fully understand and comply with research and engineering ethics. ② To obtain ethical knowledge of research involving human subjects and fully understand and implement the procedures necessary for such research.

#### Dissertation evaluation criteria

A thesis is accepted if it satisfies all of the following criteria.

##### <Criteria for thesis examination>

1. The dissertation should provide a clear description of the significance and positioning of the research in the engineering field; and should be based on the understanding of international research trends and previous research in related fields.
2. The dissertation should contain original research outcomes that contribute to the development of the engineering field and should be suitable for publication in an academic journal paper.
3. The reliability of the research results should be verified in detail.
4. The discussion of the research results should be reasonable, and the conclusions should be based on objective evidence.
5. The background, purpose, methods, results, discussion, and conclusions of the dissertation should be summarized and organized in a format suitable for a doctoral thesis.

##### <Criteria for the final examination>

1. (Generic competencies) The student should have acquired knowledge creation skills, management skills, communication skills, leadership skills, and international skills appropriate for a graduate of the Doctoral Program in Intelligent and Mechanical Interaction Systems.
2. (Research ability) The student should be able to demonstrate advanced research skills in the field of Intelligent and Mechanical Interaction Systems. They should be able to set up cutting-edge research topics independently, carry out the research, produce original outcomes, and present these results internationally.
3. (Specialized knowledge) The student should have obtained knowledge and academic skills appropriate for high-level researchers or professionals in the area of engineering; and specialized knowledge and operational ability in the field of Intelligent and Mechanical Interaction Systems.
4. (Ethical view) The student should have acquired an ethical perspective and ethical knowledge appropriate for high-level researchers and professionals in the area of engineering; and profound ethical reasoning related to the field of Intelligent and Mechanical Interaction Systems.

<Required standards for thesis submission, the system of review board members, evaluation method, and review items>

The doctoral dissertation review board shall consist of one chief reviewer and at least four sub-reviewers. The chief reviewer must be a faculty member of the degree program in charge of supervising the research, and at least two sub-reviewers must be members of the graduate school faculty.

The review board must not be formed exclusively by faculty members from the degree program in Intelligent and Mechanical Interaction Systems. It should include at least one reviewer from a different category comprising other degree programs, different research groups, and external reviewers.

The doctoral dissertation review board evaluates the thesis following the criteria for degree dissertation to provide a pass/fail judgment. The dissertation will be approved when it is deemed to have reached a doctoral dissertation level regarding the five evaluation items described above, including a final (oral) exam in the judgment.

## Curriculum Policy

The curriculum is organized to cultivate researchers able to discover and solve problems relevant to our society from a broad perspective. Courses are designed to cover areas of system design, human-machine-robot systems, measurement and control engineering, communication systems, as well as a wide range of basic knowledge and ethical perspective in the areas of engineering, science, and technology.

Curriculum organization policy	<p>The primary goal of the curriculum is to develop advanced research abilities in the field of Intelligent and Mechanical Interaction Systems, including general and specialized knowledge, ethical view, and research competencies. The curriculum is supplemented, if necessary, by Degree Programs' Common Courses, Interdisciplinary Foundation Courses, and Graduate General Education Courses.</p> <ul style="list-style-type: none"> <li>• Students acquire the Competence of knowledge creation mainly through Special Research Courses including: Research in Intelligent and Mechanical Interaction Systems A, B, C, Research Paper Presentation Workshops (Research Paper Presentation Workshop in Intelligent and Mechanical Interaction Systems I, II and International Conference Paper Presentation Workshop in Intelligent and Mechanical Interaction Systems), and Collaboratory Research Workshops (Collaboratory Research Workshop in Intelligent and Mechanical Interaction Systems III, IV).</li> <li>• Management skills are obtained through Research in Intelligent and Mechanical Interaction Systems courses and Research Proposal Writing Workshops (Research Proposal Writing Workshop in Intelligent and Mechanical Interaction Systems III, IV).</li> <li>• Communication skills are trained through Research in Intelligent and Mechanical Interaction Systems courses, Research Proposal Writing Workshops, and presentation at academic conferences.</li> <li>• Leadership skills are gained mainly through Research in Intelligent and Mechanical Interaction Systems courses, Research Paper Presentation Workshops, Collaboratory Research Workshops, Research Proposal Writing Workshops, teaching assistant experience, and participation in extracurricular activities.</li> <li>• An international perspective is achieved through Research in Intelligent and Mechanical Interaction Systems courses, English workshops, and International Conference Paper Presentation Workshops.</li> <li>• Research skills are obtained through Research in Intelligent and Mechanical Interaction Systems courses, Research Paper Presentation Workshops, and Research Proposal Writing Workshops.</li> <li>• Specialized knowledge is accomplished through Research in Intelligent and Mechanical Interaction Systems courses, Research Paper Presentation Workshops, and Collaboratory Research Workshops.</li> <li>• An ethical view is gained mainly through Research in Intelligent and Mechanical Interaction Systems courses and e-learning programs on ethics.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• After enrollment, students will be guided by their supervisors to identify socially and academically relevant research problems and think about how to solve them on their own.</li> <li>• Each student will learn independently more specialized knowledge and skills while working on their research tasks.</li> </ul> <p>In addition, by taking advantage of the multiple supervisor system students will be able to receive guidance from sub-supervisors of different areas of expertise beyond the boundaries of the degree program and develop their abilities to analyze problems from a broader perspective.</p>

	<ul style="list-style-type: none"> <li>• Students are instructed to present the obtained research findings at seminars and academic conferences and publish research papers in academic journals.</li> </ul> <p>Evaluation of the students' performance will provide hints to improve and further develop their research.</p> <ul style="list-style-type: none"> <li>• Concurrently, each student conducts an Achievement Evaluation self-check periodically. Therefore, students are encouraged to acquire the lacking knowledge or skills to complete the program successfully.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Students will present their research outcomes in the Research in Intelligent and Mechanical Interaction Systems A. Performance evaluation of the students will be conducted based on the presentation.</li> <li>• Students will present the results of their thesis dissertation for evaluation in the Research in Intelligent and Mechanical Interaction Systems B. Alternatively eligible students who have published peer-reviewed papers can apply for early completion and get a screening by the evaluation committee.</li> <li>• Students will take a preliminary evaluation of their thesis dissertation In Research in Intelligent and Mechanical Interaction Systems C.</li> <li>• Achievement Evaluation is confirmed by the supervisor of the student by reviewing the Achievement Evaluation self-check of the student.</li> <li>• In order to be awarded the degree students must pass a final examination of the Achievement Evaluation.</li> </ul> <p>The examination is conducted by the achievement review board, which will confirm the evaluation plan prepared by the supervisor based on the Standards of Achievement Level Assessment.</p>
Admission Policy	
Desired students	<p>We seek candidates who possess mathematical skills, English language skills, and mathematical thinking ability necessary for developing cutting-edge research. Students are expected to be able to acquire research skills, specialized knowledge, and the ethical view needed to contribute to academia and society as high-level researchers and professionals in the field of Intelligent and Mechanical Interaction Systems.</p>
Selection policy	<p>A variety of candidates are selected through internal admission selection, general entrance examination, and special entrance examination for working candidates.</p> <p>An oral examination is required regardless of the examination category.</p> <ul style="list-style-type: none"> <li>• The internal admission selection process allows candidates who are expected to complete the Master's Program in Intelligent and Mechanical Interaction Systems to proceed to the doctoral program. Such candidates are expected to include those who possess strong fundamental abilities and research skills and are expected to be employed by the Research Fellowship for Young Scientists by the Japan Society for the Promotion of Science (DC1 or DC2) and those suitable for early completion of the doctoral program.</li> <li>• The general entrance examination selection process allows candidates who possess a certain level of research skills and complementary abilities to join the doctoral program. Those candidates are expected to complete the program within the standard period.</li> <li>• The special entrance examination for working candidates allows working applicants to join the doctoral program.</li> </ul> <p>This process evaluates the achievements and experience acquired as a functional member of society in addition to research skills and complementary abilities. This examination is conducted according to the Admission Policy and to the candidate's personal plan, which provides different alternatives such as completing the program while working, using the extension system which allows completing the course beyond the standard period to finish the program, or using the early completion program which allows finishing the program in one year.</p>



## Doctoral Program in Engineering Mechanics and Energy

Name of the degree to be conferred	Doctor of Philosophy in Engineering
Educational purpose	The Doctoral Program in Engineering Mechanics and Energy, which helps students possess advanced specialized knowledge in engineering areas of machinery, architecture, social infrastructure, energy, aerospace, etc. as well as the ability to take a multidisciplinary approach to associated surrounding areas and to internationally provide information, cultivates university faculty members, researchers and highly specialized professionals who play a role in taking the lead in the society by administering and operating research projects appropriately and can appropriately supervise potential younger talents learning in the areas of engineering.
Vision of human resources development	He or she should possess a wide range of knowledge in the areas of engineering such as machinery, architecture, social infrastructure, energy and aerospace, set their sights to be an engineer or researcher who has the fertile minds to contribute to mankind's strides, take a multidisciplinary approach to associated surrounding areas while possessing advanced specialized knowledge, and be capable of take the lead in being active in the areas.
Diploma Policy	
The degree of Doctor of Philosophy in Engineering is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research ability: Ability to extract leading-edge problems in the areas of engineering mechanics and energy and propose and carry out solution methods	① If leading-edge research tasks in the areas of engineering mechanics and energy are set up independently and appropriately ② If the basic and applied skills for conducting leading-edge research in the areas of engineering mechanics and energy were gained ③ If leading-edge research in the areas of engineering mechanics and energy is carried out independently and successfully

7. Specialized knowledge: Basic academic abilities, leading-edge advanced specialized knowledge and command of them in the areas of engineering mechanics and energy	① If the basic specialized knowledge in the areas of systems and information engineering was gained ② If leading-edge advanced specialized knowledge and command of it in the areas of engineering mechanics and energy were gained
8. Ethical view: Ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of engineering	If researcher ethics and engineer ethics were understood and adhered by

#### Dissertation evaluation criteria

A thesis is accepted if all of the following evaluation items are proven to be met.

##### <Criteria for degree thesis review>

1. With the review of the research trends and preceding researches in the associated areas, the significance and positioning of the research must be clarified.
2. Original research findings that contribute to engineering strides must be contained.
3. Research findings must be sufficiently verified in reliability.
4. The conclusion of the research must be based on objective evidence and rational deduction.
5. All of the above items must be incorporated with an appropriate thesis structure and unequivocal descriptions. In addition, the thesis must be accompanied by a theme that accurately explains the thesis content.

##### <Criteria for final exam>

The student is asked to explain his or her degree thesis content, and at his or her explanation, the above criteria 1 to 5 must be confirmed to be met. In addition, the student must have gained the following abilities, knowledge, etc.

1. Competence of knowledge creation: Ability to create new knowledge to be able to contribute to future society
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective
3. Communication competence: Ability to express the nature of academic findings positively and clearly
4. Leadership competence: Ability to accomplish objectives under one's leadership
5. Competence in Internationality: High level of awareness and motivation to be internationally active and contribute to international society
6. Research ability: Ability to extract leading-edge problems in the areas of engineering mechanics and energy and propose and carry out solution methods
7. Specialized knowledge: Basic academic abilities, leading-edge advanced specialized knowledge and command of them in the areas of engineering mechanics and energy
8. Ethical view: Ethical view and ethical knowledge appropriate for highly specialized professionals in the areas of engineering

##### <Level standards required for the degree thesis, review board members, review method and review items, etc.>

The examiners of the Doctoral Dissertation Review Committee shall consist of one main examiner and at least three associate examiners; the main examiner shall be the research advisor of this research group, and at least two associate examiners shall be the faculty members in charge of the graduate school. Note that not all of the examiners for the main and associate examiners shall be faculty members of the Degree Program in Engineering Mechanics and Energy, but at least one examiner from any of the following categories shall be added: other degree programs, other research groups, or external examiners.

The chief reviewer opens a doctoral dissertation review board, and the board reviews the dissertation in accordance with the criteria for degree dissertation review to judge the acceptance of the dissertation.

The dissertation passes if approved to be on a doctoral dissertation level in all of the above evaluation items with the final (oral) exam included in the judgment.

#### Curriculum Policy

The curriculum is organized with the objective of fulfilling the Diploma Policy (DP). More specifically, students deeply learn the foundations and leading-edge technologies in engineering areas of machinery, architecture, social infrastructure, energy, aerospace, etc. and also learn widely in multiple areas in science and technology so that the Program can cultivate human resources who have the big picture in mind that an ordinary vertically-sectioning engineering major would not give.

Curriculum organization policy	<p>The required subjects are organized to develop advanced research ability for engineering mechanics and energy as the first objective of the curriculum.</p> <p>In addition to Major Subjects, students are required to earn 2 credits or more from Degree Programs' Common Courses, subjects offered in other Degree Programs, Inter-disciplinary Foundation Courses and Graduate General Education Courses to gain a wider range of knowledge and research ability.</p> <p>The required subjects are organized to cultivate presentation and communication abilities and a wide perspective.</p> <p>Students attain the requirements enumerated in DP by incorporating the learning in these subjects and the research of each student's area of expertise into a doctoral dissertation.</p> <p>In addition, the opportunities to serve as a teaching assistant of lectures in the Master's Program or Colleges are actively offered to gain experience to supervise potential younger talents.</p> <p>(Generic knowledge and ability)</p> <ul style="list-style-type: none"> <li>• Competence of knowledge creation is gained through Major Subjects, special researches, special seminars, doctoral dissertation creation, and academic conference presentations in Degree Programs' Common Courses and Program subjects, etc.</li> <li>• Management competence is gained through special researches, special seminars, achievement self-check, drawing up doctoral dissertation research plans, etc.</li> <li>• Communication competence is gained through special researches, special seminars, internships, academic conference presentations, poster presentations, etc.</li> <li>• Leadership competence is gained through special researches, special seminars, internships, teaching assistant (graduate school seminars, etc.) experience, project participation experience, laboratory activities, etc.</li> <li>• Competence in Internationality is gained through special researches, special seminars, internships, EME international seminar series, joint research with foreigners (including international students), international conference presentations, English research paper publication, etc.</li> </ul> <p>(Specialized knowledge and ability)</p> <ul style="list-style-type: none"> <li>• Research ability is gained through special seminars, special researches, academic conference presentations, research paper publication, doctoral dissertation, etc.</li> <li>• Advanced knowledge in the area of expertise is gained through specialized subjects in Degree Programs' Common Courses and Program subjects, academic conference presentations, research paper publication, doctoral dissertation, etc.</li> <li>• A cross-disciplinary point of view is gained through Degree Programs' Common Courses, special seminars, special researches, academic conference presentations, etc.</li> <li>• The ability to extract problems and propose solution methods is gained through special researches, special seminars, internships, project participation experience, laboratory activities, etc.</li> <li>• The ability to transmit outcomes inside and outside Japan is gained through special researches, special seminars, internships, joint research with foreigners (including international students), international conference presentations, English research paper publication, etc.</li> <li>• The ability to administer and operate research projects is gained through special researches, special seminars, internships, project participation experience, laboratory activities, etc.</li> <li>• Ethical view is gained through special seminars, special researches, e-learning for ethics, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students learn in accordance with the curriculum model for subjects.</li> <li>• Students set up research tasks in each area of expertise and proceed with a doctoral dissertation research under the advice of supervisory faculty members.</li> <li>• Students present obtained research findings at seminars, academic conferences, etc. Being evaluated in those opportunities, students get hints to improve or develop their research.</li> </ul>

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The supervisory and sub-supervisory faculty members check the learning progress of Common Foundation Subjects.</li> <li>• With Seminar in Engineering Mechanics and Energy, each student presents research outcomes and receives evaluation.</li> <li>• At the review of degree thesis and the final exam, the student makes a presentation about the thesis content, and the review board evaluates it.</li> </ul>
Admission Policy	
Desired students	<p>We seek potential engineers or researchers with the fertile minds to contribute to mankind's strides and with the goal to actively take the lead in relevant areas, who have a master's degree or have the prospect of earning it, possess the sufficient academic abilities in the areas associated with engineering mechanics and energy, and have an interest in machinery, architecture, social infrastructure, energy, aerospace, and such other engineering areas.</p>
Selection policy	<p>The entrance exams are designed to be convenient for those who graduated from other universities, working individuals and international students so that the Program actively accepts outstanding human resources outside Tsukuba. In the general entrance exam and special entrance exam for adults, candidates make a presentation about the content of research that they have conducted so far and also about the future research plan, and then are asked questions about associated matters.</p> <ul style="list-style-type: none"> <li>• The internal assessment selection selects those who are expected to complete the Master's Program in Engineering Mechanics and Energy, who possess especially high fundamental abilities and research abilities.</li> <li>• The general entrance exam selects those who possess the basic academic abilities and research abilities that enable the completion of a master's degree program in engineering with honors.</li> <li>• The special entrance exam for adults evaluates the achievements and experiences as an adult member of society in addition to the above basic academic abilities and research abilities.</li> </ul>

## Doctoral Program in Life Science Innovation (Bioinformatics)

Name of the degree to be conferred	Doctor of Philosophy in Bioinformatics
Educational purpose	The Doctoral Program in Life Science Innovation cultivates highly specialized professionals or researchers who possess the world's top-class advanced specialized research ability with cross-disciplinary mind from a higher perspective, open up a new strides in life science research using bioresources, produce internationally highly appraised research outcomes, and are globally active in the areas of research and development of innovative pharmaceutical products and functional foods and in the areas of their maintenance and administration.
Vision of human resources development	The Doctoral Program cultivates “researchers and highly specialized professionals who can produce research outcomes that work on a high international level and lead to making innovations in bioinformatics” using not only the deep bioinformatics knowledge and skills gained in the Master's Program but also a wide range of knowledge in the associated areas.
Diploma Policy	
The degree of Doctor of Philosophy in Bioinformatics is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Innovation ability: Ability to make innovations in the areas of life science.	① If there is the awareness and motivation to create new knowledge and pass it along to the society in the areas of life science ② If the research techniques and reasoning skills for the theory and practice that lead to innovation creation in the areas of life science were gained ③ If issues that have not been revealed in bioinformatics were identified and solved ④ If there is the motivation to identify and solve cross-disciplinary research tasks in cooperation with researchers from different areas and not just one's own area

7. Specialized knowledge: Leading-edge knowledge in the area of expertise	① If leading-edge specialized knowledge about bioinformatics was gained ② If a research plan for solving unsolved issues was drawn up based on gained specialized knowledge
8. Advanced practical English: Command of English sufficient for performing various activities involving research in the international society	① If the presentation ability that can impact the international society when research outcomes are reported or shared in English was gained ② If the English proficiency and knowledge to debate equally with researchers active in the front lines were gained

#### Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree dissertation must be the results of work in which the diploma applicant took the initiative and must contain research findings that are unprecedented and internationally highly appraised and that contribute to make strides in the areas of bioinformatics.

The degree dissertation must be written in English logically and scientifically and must be constructed in an appropriate format as a degree dissertation.

【Review board members】 A dissertation is reviewed by an exclusive board formed by one chief reviewer and three or more sub-reviewers.

The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the three or more sub-reviewers, two or more faculty members qualified to supervise the research in the Program must be included.

The four or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members.

In addition, as the four or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain his or her degree thesis content and then questioned by exclusive board members about what he or she has explained.

The presentation of dissertation content and a question-and-answer session, which are part of the final exam, are publicly administered. During this examination, in which the applicant is required to make a presentation about his or her degree dissertation in English logically and scientifically, the applicant is evaluated to see if he or she can convince the reviewers sufficiently by answering the reviewers' questions with insight and by using the advanced specialized knowledge of the areas of bioinformatics and including the latest research trends.

#### Curriculum Policy

Students are engaged in the research activities for identifying and solving unsolved issues for making innovations in the realms of bioinformatics. The curriculum includes internship subjects to support students in making innovations, for which they need to have the high awareness and motivation to work on research tasks in very different and/or cross-disciplinary areas in cooperation with researchers in different areas not just one's own area of expertise. In addition, to gain the cross-disciplinary way of thinking with the big picture in mind and cultivate the world's top-class advanced specialized research ability, the curriculum also organizes seminars taught by researchers who are active in the front lines and belong to overseas research institutes.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The curriculum in the bioinformatics realms are composed of Major Subjects, the foundation subjects shared by the six realms of the Master's Program in Life Science Innovation (Disease Mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics, Biomolecular Engineering), and Graduate General Education Courses. In specialized knowledge, students are supervised for bioinformatics research.</li> <li>• Competence of knowledge creation is gained through doctoral dissertation creation, etc.</li> <li>• Management competence is gained through "Doctoral Competency Development", etc.</li> <li>• Communication competence is gained with "Practices in Life Science Innovation", etc.</li> <li>• Leadership competence is gained through "Doctoral Research in Life Science Innovation".</li> <li>• Competence in Internationality is gained through "Doctor's Life Science Innovation Seminar", etc.</li> <li>• Innovation ability is gained through General Foundation Subjects, Major Subjects, etc.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Specialized knowledge is gained through “Doctoral Research in Life Science Innovation”, etc.</li> <li>• Advanced practical English is gained through “Doctor's Life Science Innovation Seminar”, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• With the understanding of the latest research trends in bioinformatics, students identify issues that have not been revealed and draw up and carry out an appropriate research plan for solving them. Further, through critical debates with supervisory faculty members, students develop the plan into a research that leads to produce life science innovations.</li> <li>• Obtained research findings are presented in academic journals, etc. With this, students improve their English proficiency, and in the process, gain reasoning skills.</li> <li>• With General Foundation Subjects and Graduate General Education Courses, students learn the latest research trends in the areas of life science and also improve English presentation ability.</li> <li>• With internships, research ability is honed through the experience of creating new knowledge in cooperation with researchers in other areas not just one's own area of expertise.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the initial evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for doctoral dissertation creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• One year before the expected completion of the Program, interim evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Five months before the expected completion of the Program, the final evaluation (Achievement evaluation III) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered five months before the expected completion of the Program, the preliminary review for the doctoral dissertation is conducted by the chief reviewer and three sub-reviewers.</li> <li>• At the final exam which is administered three months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and three sub-reviewers based on the presentation and question-and-answer session for the doctoral dissertation content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who have the sufficient qualities to gain the basic research abilities that are expected to make innovations in the areas of bioinformatics, the specialized knowledge necessary to achieve it, and good command of English serving for various research activities in the international society.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess master's degree level specialized knowledge (excellence in the current academic performance), and the ability to explain concretely in English about research backgrounds, research plans and about passing along research findings to the society.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for carrying out research activities in the Doctoral Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation and basic research abilities necessary for making innovations in the areas of bioinformatics and the ability to explain and debate in English.</li> </ul>

## Doctoral Program in Empowerment Informatics

Name of the degree to be conferred	Master of Engineering Doctor of Philosophy in Human Informatics
Educational purpose	To cultivate global leaders that can take initiatives and design systems to empower people in the international society of people with diversified cultural background.
Vision of human resources development	Human resources that have the following three practical abilities, including inter-disciplinary ability to consider issues from multifaceted perspectives, frontline ability to resolve real-world problems in industrial, governmental and academic spheres and presentation ability to communicate and appeal the essence of research achievements, in addition to basic research ability in the area of “Empowerment Informatics” as “Informatics that supplements and extends human functions and enables technology to work in harmony with people ” .

### Diploma Policy

The degree of Doctor of Philosophy in Human Informatics is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulation of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

At the interim evaluation, the degree of Master of Engineering will be commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulation of the University of Tsukuba and related university regulations, and who have passed the Qualifying Examination.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Interdisciplinary ability: ability to utilize the knowledge the area of expertise in human informatics and the one other than in one's own area for various tasks.	① If there is basic specialized knowledge which covers the areas that constitute human informatics ② If there are discussion, research or practical business obtained based on the knowledge in the area other than one's own area of expertise.

7. Presentation ability: ability to set leading-edge research tasks in human informatics and to achieve internationally competent creative results.	① If there is creative research ability to contribute to development of human informatics and performance to be recognized as an expert ② If capable of making presentation of research outcomes in international conference and discuss about them.
8. Frontline ability: ability to plan and explain the methods to resolve real-world problems based on ethical view and ethical knowledge appropriate for researchers in the area of human informatics or highly specialized professionals.	① If capable of trying to solve actual problems and draft a new project. ② If capable of properly grasping/analyzing the obstacle upon solving actual problems and considering the measures to overcome them. ③ If capable of understanding and complying with the procedures required for researcher ethics, engineer ethics, ethics and research relating to the research tasks to people.

#### Dissertation evaluation criteria

##### 【Master's program】

A thesis is accepted if all of the following evaluation items are proven to be met.

1. Based on understanding of preceding research in relevant area, if the significance and positioning of the said research in human informatics is described.
2. If original research findings in the areas of engineering are contained well enough to be presented in academia, etc.
3. If constant reliability is found in the research outcomes.
4. If research results are appropriately discussed and an adequate conclusion is drawn
5. If research backgrounds, purposes, methods, results, discussions, conclusions, etc. are organized in a format appropriate as a master's degree thesis

<Level standards required for the degree thesis, review board members, review method and review items, etc.>

A master's thesis review board shall consist of one chief examiner and two or more sub-chief examiners designated from teachers in charge of Degree Programs in Systems and Information Engineering.

However, where required, faculty members of other Degree Programs or other university graduate schools or laboratory researchers, etc. can serve as sub-reviewers.

The chief reviewer must be the research supervisory faculty member. As the sub-reviewers, two or more applicable faculty members of the Degree Programs in Systems and Information Engineering of the Graduate School must be included.

A master's thesis review board shall examine specific theme research in accordance with the standard relating to master's thesis review and conduct acceptance decision. The thesis approved to satisfy the standard as the one for a degree regarding the above-mentioned evaluation items 1. to 5. shall be accepted after finishing interview (oral) examination.

##### 【Doctoral Program】

The thesis for a degree shall satisfy the following evaluation items and passing the final exam shall be the requirement for granting doctorate degree.

<Criteria for degree thesis review>

1. Based on understanding of international research tendency and preceding research in relevant area, if the significance and positioning of the said research in human informatics is clearly described.
2. If the appropriate amount of original research outcomes that contribute to development of human informatics for presenting as a thesis is included.
3. If Research results are sufficiently verified in reliability
4. If research results are adequately discussed and concluded based on objective evidence
5. If research backgrounds, purposes, methods, results, discussions, conclusions, etc. are organized in a format appropriate as a doctoral dissertation

<Criteria for final exam>

1. 【Interdisciplinary ability】 If there is basic specialized knowledge which covers the areas that constitute human informatics
2. 【Interdisciplinary ability】 If there are discussion, research or practical business obtained based on the knowledge in the area other than one's own area of expertise.
3. 【Presentation ability】 If there is creative research ability to contribute to development of human informatics and performance to be recognized as an expert

4. **【Presentation ability】** If capable of making presentation of research outcomes in international conference and discuss about them.
5. **【Frontline ability】** If capable of properly grasping/analyzing the obstacle upon solving actual problems and considering or planning the measures to overcome them.
6. **【Frontline ability】** If capable of understanding and complying with the procedures required for researcher ethics, engineer ethics, ethics and research relating to the research tasks to people.

<Level standards required for the degree thesis, review board members, review method and review items, etc.>

A doctoral thesis review board shall be composed of one chief examiner and three or more sub-chief examiners.

Among these examiners, the chief examiner and two or more sub-chief examiners shall be designated from teachers in charge of Empowerment Informatics Program (thesis supervisors), two or more of whom shall be professors.

Besides, if necessary, one person designated by the chair of Assessment of Student Achievement Committee shall participate as an observer, who shall bear responsibility for confirming that the thesis examination is properly carried out.

A doctoral thesis review board shall examine thesis in accordance with the standard relating to thesis review and conduct acceptance decision. The dissertation passes if approved to be on a doctoral dissertation level in all of the above evaluation items 1 to 5 with the final (oral) exam included in the judgment.

## Curriculum Policy

Based on the system of “Empowerment Informatics” as “Informatics that supplements and extends human functions and enables technology to work in harmony with people”, the followings three areas that consider the exit points as career path:

- Supplementation•••to supplement the reduced physical and sensory functions of disabled and senior people.
- Harmony•••to harmonize so that engineering systems which people contact with in their daily lives can be integrated into them.
- Extensions•••to externalize the latest creative functions that people potentially have.

Additionally, the curriculum shall be organized to cultivate the abilities required for advanced global leaders appropriate for a doctor through diversified programs. user-related elements (understanding of people), cross-disciplinary course work to acquire cross-disciplinary knowledge based on system-related elements (system engineering understanding), contents-related elements (packaging technology) practical research training to meet social needs etc.

The education/research supervision shall be provided to cultivate wide basic knowledge in Systems and Information Engineering, wide view to cover Science and Technology and generic competences to support the active role in social diversified settings, including research ability, specialized knowledge and ethical view.

### Curriculum organization policy

The curriculum shall be organized by setting enhancement of research ability relating to Empowerment Informatics as a primary purpose and in order to contribute to cultivating basic knowledge and wide view, generic competences in relevant areas. As necessary, it is recommended to register the credits from Degree Programs’ Common Courses, Inter-disciplinary Foundation Courses and Graduate General Education Courses. In research supervision, in order to foster the research ability with multifaceted perspectives, multidisciplinary research advisory system shall be adopted (the faculty members in other doctoral programs shall participate in the courses as necessary). Detailed courses to be taken and deployment of multiple supervisors shall be decided with consideration to the research plans of individual students and their career plans etc.

### 【Generic competences】

- To acquire Competence of knowledge creation mainly through Advanced Research (Seminar in Empowerment Informatics I, II, III, IV, V), Practicum and Practical Classes(Oral Presentation Workshop in Empowerment, Research Paper Writing Workshop in Empowerment Informatics, Conference Paper and Journal Paper Writing Exercise in Empowerment Informatics).
- To acquire Management competence mainly through Advanced Research and Empowerment Informatics Project-based Research.
- To acquire communication skills mainly through Advanced Research, Introduction to Empowerment Informatics, Practical Training in Engineering Residence.

- To acquire Leadership competence mainly through Advanced Research.
- To acquire Competence in Internationality through Advanced Practical Training and Advanced Research.

**【Specialized knowledge/ability】**

- To acquire interdisciplinary ability mainly through Introduction to Empowerment Informatics, Advanced Practical Training, Advanced Research, Degree Programs' Common Courses (mainly in the area of Empowerment Informatics).
- To acquire presentation ability mainly through Advanced Research, Advanced Practical Training, Empowerment Informatics Project-based Research, Conference Paper and Journal Paper Writing Exercise in Empowerment Informatics, Conference Paper and Journal Paper Writing Exercise in Empowerment Informatics, Research Paper Writing Workshop in Empowerment Informatics.
- To acquire frontline ability mainly through Introduction to Empowerment Informatics, Advanced Research and Practical Training in Engineering Residence.
- For the students with diversified academic backgrounds, the courses to acquire basic knowledge and skills necessary to commence research immediately after enrollment. Concurrently, students are supervised to identify socially and academically significant research tasks in their own right.
- Each student learns under their initiative for more specialized knowledge and skills through classes, etc. while working on their research tasks.  
Additionally, by taking advantage of multidisciplinary research advisory system, to cultivate ability to see from a higher perspective and interdisciplinary ability to grasp issues from diversified perspectives by participating seminars of sub supervisors with different specialty.
- To provide instruction in order that research outcomes obtained are finally presented in academic research paper and receive evaluations from a large number of researchers.  
Through this, to enhance Competence of knowledge creation, promote further research and empower people to acquire higher specialized knowledge/skills.
- Concurrently, each student does an achievement self-check wherever necessary to be encouraged to gain the knowledge or skills to made up for the lack to complete the Program.

**Learning methods •  
Processes**

- For the students with diversified academic backgrounds, the courses to acquire basic knowledge and skills relating to the elements, including understanding the characteristics of people (user-related elements), understanding system engineering (system-related elements) and understanding system structure and interaction design (contents-related elements) necessary to commence research immediately after enrollment, shall be focused on.  
Concurrently with the above-mentioned, such courses shall be implemented in order that students themselves can find research tasks having social impacts by satisfying interdisciplinarity, novelty and utility.
- Each student learns under their initiative for more specialized knowledge and skills through classes, etc. while working on their research tasks.  
Additionally, by taking advantage of multidisciplinary research advisory system, to cultivate ability to see from a higher perspective to grasp issues from diversified perspectives by participating seminars of sub supervisors with different specialty.
- To provide instruction in order that research outcomes obtained are finally presented as peer-reviewed academic research paper and receive evaluations of high level.  
Through this, to enhance Competence of knowledge creation, promote further research and empower people to acquire higher specialized knowledge/skills.
- Concurrently, each student does an achievement self-check wherever necessary to be encouraged to gain the knowledge or skills to made up for the lack to complete the Program.



Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Learning outcomes shall be evaluated in accordance with “Table of Methods for Grading Achievement of Objectives Relating to Learning and Education” .</li> <li>• In “EMP seminar” of the first year and the second year, the research progress of the students shall be promptly reported and receive evaluation and feedback.</li> <li>• At the end of each year of the first to fourth year, the students shall submit their achievement self-check sheets to supervisor, receive evaluation by supervisor for achievement and confirmation of their research progress. Based on these, registration plan and research plan shall be reviewed.</li> <li>• By Qualifying Examination (comprehensive examination of basic abilities) of the second year, the possibility of undertaking intensive work on Ph.D. thesis shall be examined.</li> <li>• In Final Assessment of Student Achievement, students’ achievement and if their submission of Ph.D. thesis is approved or not shall be examined.</li> <li>• In Final Assessment of Student Achievement, students’ achievement shall be confirmed.</li> </ul>
Admission Policy	
Desired students	<p>The desired students shall have sufficient research ability such as adaptability in the area of expertise to explore the essence and resolve real problems, multilateral and multifaceted ability to see from a higher perspective and creativity etc. to develop a new horizon for the most advanced and latest discipline, the capacity as a leader to tackle various global issues that spread in real society and strong enthusiasm and career aspiration to aim at becoming global leaders in industries.</p>
Selection policy	<p>The basic policy is to select the human resources appropriate for coexistence of academic character and practical skills.</p> <p>We shall correspond to diversified applicants through recommendation entrance examination and general entrance examination by dividing the number of expected applicants and implementing multiple entrance examinations in the same fiscal year.</p> <p>Regardless of examination categories, foreign language (submission of TOEIC official score certificate, examinee score report of TOEFL etc., upon application) and oral examination are compulsory.</p> <p>In oral examination, the interview relating research plan and career plan shall be performed.</p> <ul style="list-style-type: none"> <li>• In recommendation entrance examination (July), the ideal candidates shall be the ones who make our degree program their number one choice, get good grades and excellent ability necessary for research in Empowerment Informatics.</li> <li>• In the 1<sup>st</sup> General Examination (August), the applicants who have high basic academic skills in mathematics/English etc., have clear statement of purpose for applying our degree program and excellent ability in concreteness and conception for career plan. Furthermore, in the 2<sup>nd</sup> General Examination (February), the applicants shall be selected through evaluation of their graduate study (or the alternatives) in addition to the above-mentioned.</li> </ul>



## Master's Program in Biology

Name of the degree to be conferred	Master of Science
Educational purpose	In the eight research areas, Taxonomy & Evolution, Ecology, Plant development & physiology, Animal development & physiology, Molecular cell biology, Genome informatics, Advanced cell biology, Advance molecular biology, the students in doctoral program, teachers in junior high schools/ high schools and advanced professionals etc. who have wide knowledge and fundamental research ability, ability to explore issues and practical skills, and ability to disseminate scientific knowledge to society shall be trained.
Vision of human resources development	<p>The human resources who have the following abilities shall be fostered:</p> <ul style="list-style-type: none"> <li>• Having learned knowledge in the area of expertise and fundamental research ability.</li> <li>• Possible to logically grasp the biological world and phenomenon and to work on the problems set from the basic scientific perspectives and to explore the basic principle behind them.</li> <li>• Having acquired presentation/communication skills.</li> </ul>
Diploma Policy	
The degree of Master of Science is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Knowledge in natural science: comprehensive knowledge in general natural science	If capable of understanding the trend in fundamental research in various areas of natural science.
7. Knowledge in biology: comprehensive basic knowledge in general biology in order to logically grasp the biological world and phenomenon	If having comprehensive basic knowledge in general biology in order to logically grasp the biological world and phenomenon.
8. Research ability for biology: ability to research the problems set from the biological perspectives	If having advanced knowledge relating to the area of expertise of biology and ability to accomplish experiments

9. Ability to explore biology research: ability to explore new problems and issues behind the research outcomes acquired	If having abilities to understand the basic school regulations behind real-life biological problems and to solve new problems
10. Ability to disseminate biology research: presentation ability and communication skills to disseminate research outcomes	If having presentation ability and communication skills for research in the area of expertise.

#### Dissertation evaluation criteria

The dissertation that satisfies all the following items shall be a pass as the thesis for master's degree after going through final examination.

Further, the committee for master's thesis review (one chief examiner and two or more sub-chief examiners) shall examine the dissertation. Additionally, as appropriate the faculty member(s) of other master's programs shall be able to participate in such examination as sub examiner(s).

1. If the real problems in biology are set from perspectives of basic science or the ones that anticipate their applications.
2. If research methods of theory, experiments and survey used for exploring problems and analysis methods for data obtained are scientifically appropriate.
3. If the points of argument from problem setting to conclusion are unfolded demonstratively and logically.
4. If the academic results for the problems set are acquired.
5. If the dissertation is presentable as a thesis for master's degree.

#### Curriculum Policy

Based on understanding diversity of the biological world, in order to acquire the ability to elucidate the basic principle of biological phenomenon, the curriculum shall be organized focusing on the eight research areas, Taxonomy & Evolution, Ecology, Plant development & physiology, Animal development & physiology, Molecular cell biology, Genome informatics, Advanced cell biology (cooperated graduate school), advance molecular biology (cooperated graduate school) that constitute this degree's program.

Curriculum organization policy	<p>Centering around the students' major area, in order to contribute to cultivating basic knowledge and wide view, generic competences in relevant areas, one or more credits shall be registered from Graduate General Education Courses, Inter-disciplinary Foundation Courses and Degree Programs' Common Courses. The specialized lectures as specialized courses in area of expertise and practical training and special research as selective compulsory courses shall be registered and basic knowledge and skills of the area of expertise shall be learned.</p> <ul style="list-style-type: none"> <li>• From Degree Programs' Common Courses, Inter-disciplinary Foundation Courses and Graduate General Education Courses, the ability to understand approaches of natural science, and in addition, comprehensive ability, such as information science, research ethics, bioethics, communication skills and ability to disseminate research outcomes etc. shall be acquired.</li> <li>• By Foundation Subjects for Major, fundamental knowledge and ability to understand general biology science including biology and science communication and presentation ability shall be acquired.</li> <li>• By Major Subjects, basic survey/analysis skills in biological research areas of various biological scientific areas shall be learned and ability to research and explore, and to disseminate shall be acquired.</li> <li>• In the seminars of the area of expertise, intensive reading of the newest and latest articles shall be performed and analysis ability and presentation ability shall be acquired.</li> <li>• In research methods of the area of expertise, ability to acquire data through experiments and analysis and to consider the conclusions and problems of research contents shall be acquired.</li> <li>• Through science mediation implementation and TA experience, experience of presentation in research seminars, capacity of teamwork in research practice shall be acquired.</li> </ul>
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	<ul style="list-style-type: none"> <li>•Through presentation in international conference, exchange with international students and collaborative research with foreign researchers, to foster awareness to contribute to international society.</li> </ul>
Learning methods · Processes	<ul style="list-style-type: none"> <li>•The standard learning year shall be two years. As the requirements to complete master's degree, it is necessary to acquire the following 30 or more credits, to put the research outcomes together in master's thesis and to pass the final examination.</li> <li>•Compulsory courses: 23 credits including Seminars and Methodology in each area, Science Presentation and Seminar in Advanced Biology shall be the compulsory courses. Especially, in Methodology, research supervision and supervision to create master's thesis shall be implemented.</li> <li>•Selective courses and others: up to seven credits including one or more credit(s) from Graduate General Education Courses, Inter-disciplinary Foundation Courses and Degree Programs' Common Courses respectively shall be granted as credits for completion.</li> <li>•Upon commencing the 1<sup>st</sup> year, for all the students the advisory committee (research supervision team) composed of the team of a chief supervisor and several sub supervisors shall be established to organize validity and problems of research plan for each student. Additionally, instruction shall be provided to confirm registered courses and acquired credits etc. The advisory committee members can be participated from other master' programs, as necessary.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>•The advisory committee shall periodically evaluate the students and examine their research progress.</li> <li>•Preliminary examination for (master's) thesis: public research presentation and questions and answers shall be set. Through the contents of research presentation, degree of acquisition of survey/analysis skills relating biology aiming at elucidating basic principle biological phenomenon, presentation ability and ability to explore problems shall be evaluated. Additionally, through questions and answers, specialized knowledge relating to biology and ability to understand shall be evaluated. Upon evaluation, the preliminary examiner shall provide scores for "presentation", "questions and answers" and "research outcomes", respectively. In preliminary examination committee after public presentation, pass/fail judgement shall be made through consultation in reference to the scores.</li> <li>•Master's thesis examination: the students who passed preliminary examination for master's thesis and acquired 30 or more credits including 23 credits of compulsory subjects shall submit the master's thesis. The thesis examiner shall examine the master's thesis submitted.</li> <li>•Final master's thesis examination: By asking for explanation relating to the thesis, questions and answers regarding relevant matters shall be performed. Based on these results, through consultation by all the thesis examiners, the following shall be evaluated: if the contents of the thesis are worth conferring the master's degree as research outcomes, and if the author of the thesis can be approved as the one who has the quality to receive the master's degree.</li> </ul>

## Admission Policy

Desired students	The desired student shall be the one who has a deep interest in biological world and phenomenon and basic academic skills for biology and strong spirit of inquiry.
Selection policy	<p>By adopting various kinds of selection methods, such as general entrance examination, special selection of international students and special selection of working individuals etc., foreign students and working individuals as well as the students who enter immediately after graduation of universities shall be broadly accepted. Through the document submitted and oral examination, the following abilities shall be evaluated:</p> <ul style="list-style-type: none"> <li>•Through the document submitted and oral examination, the basic knowledge relating to biology and basic academic skills shall be evaluated.</li> <li>•Through the scores of English proficiency examination included in the document submitted, English ability shall be evaluated.</li> <li>•Through the research plan included in the document submitted or oral examination, logical thinking ability and accurate ability of expression shall be evaluated.</li> <li>•Through oral examination, research ability and suitability shall be evaluated.</li> </ul>

## Master's Program in Agro-Bioresources Science and Technology

Name of the degree to be conferred	Master of Agricultural Science
Educational purpose	As the first stage to train the researchers etc. in agro-biological resource sciences relating to agriculture/living things/environment, the human resources who learn fundamental specialized knowledge relating agro-biological resource sciences, can contribute to stable living and sustainable development of human beings such as stable food supply and development, maintenance and sustainable use of bioresource etc., have highly creative and excellent research/development ability and additionally have distinguished ability to have responsibility for advanced professional work shall be trained.
Vision of human resources development	Human resources that have fundamental knowledge relating agro-biological resource sciences, understand the procedures to solve the problems regarding the real issues relating bioresources based on the specialized knowledge of the areas in biosystem science, have both global perspectives and local ones together, and have the ability to plan/develop the concrete methods for problem solving.

### Diploma Policy

The degree of Master of Agricultural Science is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Specialty: professional ability relating to agro-biological resource sciences.	If having acquired the specialized knowledge and research ability in the area of expertise of agro-biological resource sciences.
7. Basic knowledge: basic knowledge relating to agro-biological resource sciences	If having acquired basic knowledge and skills relating to agro-biological resource sciences.
8. Practical skills: practical skills to solve problems relating to agro-biological resource sciences	If capable of planning/developing and putting into practice the concrete methods by utilizing the basic and specialized knowledge to solve problems relating to bioresources.

## Dissertation evaluation criteria

The dissertation that satisfies all the following items shall be a pass as the thesis for master's degree after going through final examination. The committee for master's thesis review (human informatics) composed of one chief examiner and two or more sub examiners shall examine the dissertation through examination of thesis and oral examination.

1. The research tasks of the dissertation is clearly indicated and has academic or social significance.
2. The research purpose is clarified and the background of the research that led to setting of such purpose and preceding research is accurately understood, appropriately cited and logically explained.
3. The research method is valid.
4. The research outcomes are clearly indicated and analyzed by proper methods.
5. The research outcomes are logically considered and the conclusions with academic novelty and social utility are derived.
6. The dissertation is presentable as a thesis for master's degree.

## Curriculum Policy

The program shall consist of 5 areas that are different in terms of their major research methodologies: "Agro-biological Science", "Agricultural Economics and Sociology", "Applied Biochemistry", "Bioresource Environment Engineering" and "Biosystem Science" and two new programs: "Global Food Security" course as a double degree program with overseas partner institution and "International Agricultural Science" as an English program for foreign students. Basic knowledge and skills for agro-biological resource sciences and specialized knowledge, skills and research methodologies necessary to resolve the real problems relating to bioresources shall be learned.

The curriculum shall be organized in order that the students can learn the methods to analyze and summarize the data obtained by research/surveys though the said methodologies and communication skills and presentation ability can be acquired. In "Global Food Security" (double degree program) students shall acquire international views by studying abroad for one year in the overseas partner institution and ability to adapt to different culture.

### Curriculum organization policy

As a specialized fundamental course, in addition to compulsory courses common to programs and selective compulsory courses common to courses, Inter-disciplinary Foundation Courses, Degree Programs' Common Courses and Graduate General Education Courses as elective compulsory courses shall be registered and broad culture and basic knowledge and skills of agro-biological resource sciences shall be acquired.

The specialized lectures as Foundation Subjects for Major in area of expertise and practical training and special research as selective compulsory courses shall be registered and basic knowledge and skills of the area of expertise shall be learned.

Students will take Major Subjects, exercises, and special research in each specialized field as elective compulsory subjects to acquire basic knowledge and skills in each specialized field.

Additionally, by carrying out presentation and discussion in practical training, the knowledge relating to area of expertise shall be deepened and communication skills and presentation ability shall be acquired.

By carrying out special research, research/survey methods in area of expertise and analysis methods for and methods for summarizing data shall be learned and Management competence and Teamwork competences shall be acquired.

•By Foundation Subjects for Major, broad basic knowledge and skills relating to agro-biological resource sciences shall be learned and understanding of the issues relating to bioresource and ability for its application to the research of the area of expertise and flexible reasoning capacity having both global views and local views shall be acquired. Additionally, the basic ability such as Competence of knowledge application, Management competence, Communication competence, Teamwork competences and Competence in Internationality etc. shall be acquired.

•By the lecture courses of Major Subjects, multiple lectures, mainly the ones of the research area that each student is specialized in, shall be selected, and the basic knowledge and skills in each area of expertise and relevant areas and the ability to use them shall be acquired.

•By the practical training courses of Major Subjects, the knowledge relating to the area of expertise shall be deepened, ability to research and explore shall be acquire. By carrying out presentation and discussion, communication skills and presentation ability shall be acquired.



	<ul style="list-style-type: none"> <li>• By special research courses of Major Subjects, the basic research ability, such as research/survey methods by using specialized methodologies and analysis methods for and methods for summarizing data etc. shall be learned. Additionally, while each student proceeds his/her research along the theme in the area of expertise, the ability to consider/develop concrete methods to solve problems relating to bioresource and Management competence and Teamwork competences shall be acquired.</li> <li>• By summarizing and presenting the research outcomes as master's degree, the above-mentioned abilities shall be enhanced and internationally accepted communication skills and presentation ability and practical skills to use knowledge, tackle diversified problems relating to bioresource, and to contribute to human beings/society shall be acquired.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• The standard learning year shall be two years. As the requirements to complete master's degree, it is necessary to acquire the following 30 or more credits, to put the research outcomes together in master's thesis and to pass the final examination.</li> </ul> <p>(1) Foundation Subjects for Major:</p> <ul style="list-style-type: none"> <li>• Research method for agro-biological resource sciences or international research method for agro-biological resource sciences (one selective required course)</li> <li>• One credit from Degree Programs' Common Courses, Inter-disciplinary Foundation Courses and Graduate General Education Courses respectively.</li> </ul> <p>(2) Major Subjects:</p> <ul style="list-style-type: none"> <li>• Major Subjects (lecture courses): two or more credits in the area of expertise and the relevant ones that each student is specialized in (two selective required credits).</li> <li>• Major Subjects (Special research courses): four courses, 12 credits (selective compulsory courses) of special research in the area of expertise that each student is specialized in, as research supervision/thesis supervision courses.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Upon commencing the 1<sup>st</sup> year, for all the students the advisory committee (AC) composed of two or more supervisors including thesis supervisor shall be established to organize validity and tasks of research plan for each student by holding meetings to investigate problems. Additionally, instruction shall be provided to confirm registered courses and acquired credits etc. The advisory committee shall participate in other master' programs, as necessary.</li> <li>• During the spring term in the 2<sup>nd</sup> year, AC supervisors shall implement interim evaluation and examine research progress of each student through oral examination. The following three points shall be evaluated: ① if having basic knowledge relating to agro-biological resource sciences suitable for master's degree course. ② If having basic research ability (including technical knowledge) to promote research for master's thesis in the area that students belong to. ③ If research being appropriately implemented toward acquisition of master's degree.</li> <li>• For the students who are supposed to be in university for more than two years and to acquire the credits more than necessary, thesis examination and final examination shall be implemented. The committee for master's thesis review (human informatics) composed of one chief examiner and two or more sub examiners shall examine the thesis through dissertation examination and oral examination if the students have abilities suitable for master's degree (in agriculture) in light of the above-mentioned degree awarding policy (DP). Additionally, public presentation shall be carried out for each area.</li> </ul>



## Admission Policy

Desired students	<p>The desired student shall be the one who has a deep interest in agro-biological resource sciences relating to agriculture/living things/environment, has a high motivation to learn independently, has basic knowledge relating to agro-biological resource sciences, basic academic skills of natural science or social economics as the foundation of research methodologies, linguistic skill necessary for learning such as reading and understanding literature in English, ability for logical thinking to scientifically analyze various kinds of information toward problem solving and ability to express to accurately convey his/her opinion, and who desires to enter the doctoral course and to become a researcher to carry out highly specialized research, or the student who aims at contributing to society by taking advantage of broad expertise by acquiring master's degree and playing an active part on a global stage.</p>
Selection policy	<p>By adopting various kinds of selection methods, such as general entrance examination, special selection of working individuals etc. and special selection of international students and working individuals as well as the students who enter immediately after graduation of universities shall be broadly accepted.</p> <p>Through the document submitted and oral examination, the following abilities shall be evaluated</p> <ul style="list-style-type: none"><li>•Through the document submitted and oral examination, the basic knowledge relating to agro-biological resource sciences and basic academic skills shall be evaluated.</li><li>•Through the scores of English proficiency examination (TOEFL, TOEIC, IELTS) included in the document submitted, English ability shall be evaluated.</li><li>•Through the research plan included in the document submitted or oral examination, logical thinking ability and accurate ability of expression shall be evaluated.</li><li>•Through oral examination, interest in agro-biological resource sciences area and motivation toward research and independence shall be evaluated.</li></ul> <p>In order to enter "Global Food Security" course of double degree program, it is also necessary to pass the selective examination implemented by the partner institution after entering this master's degree program.</p>

## Master's Program in Geosciences

Name of the degree to be conferred	Master of Science
Educational purpose	To train the human resources who understand various natural phenomena on the earth both in the past and at present, have a broad basic knowledge and a specialized research ability to contribute to the settlement of various issues on a global scale, and have scientific intelligence necessary to overcome such issues in modern society.
Vision of human resources development	<ul style="list-style-type: none"> <li>• A person with both a wide basic knowledge in science and geosciences and excellent expertise.</li> <li>• A person with an outstanding ability for area work or experiments/data analysis.</li> <li>• A person with problem-solving skills concerning geoscientific issues.</li> <li>• A person with foreign language and communication abilities that can be accepted in the society.</li> <li>• A person who understands the needs of society for geosciences, and has a basic knowledge and an ability to take actions which re immediate assets to firms etc.</li> <li>• A person with a high ethical perspective for research activities.</li> </ul>

### Diploma Policy

The degree of Master of Science is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Knowledge and comprehensive ability: a wide knowledge and comprehensive ability related to science and geoscience.	① If having a wide knowledge related to science and geoscience. ② If understanding the basic principle behind various events related to science and geoscience.
7. Planning ability: a planning ability to plan research tasks and carry out a research plan.	① If capable of setting the research tasks related to science and geoscience. ② If capable of drafting and carrying out a research plan related to science and geoscience.
8. Problem-solving ability: an ability to tackle various issues and solve problems by understanding the basic principle behind it.	① If capable of recognizing various problems related to science and geoscience. ② If capable of solving various problems related to science and geoscience.

9. Expressiveness: an ability to express themselves based on basic foreign language skills and communication skills.	① If having basic foreign language skills. ② If having communication skills to enable students to express the research outcomes relating to sciences and geoscience by themselves.
10. Creativity: an ability to tackle various issues and apply the results obtained from the research.	① If capable of tackling various issues related to science and geoscience and achieving research outcomes. ② If having creativity to apply the research outcomes related to science and geoscience.

#### Dissertation evaluation criteria

The dissertation that satisfies all the following items shall be a pass as the thesis for master's degree after going through final examination. Additionally, the thesis shall be examined by the committee for master's thesis review (composed of one chief examiner and two or more sub examiners).

While the instructor shall be the sub-examiner in charge of master's program in geoscience, the instructors in charge of other degree programs can participate in such examination.

1. If the submitted master's thesis is high in degree of completion including descriptions, logic expansion and charts.
2. If the level of the contents of master's thesis is high enough as the research in the area of geosciences.
3. If the references are appropriately cited for the master's thesis.
4. If contribution to the research contents of master's thesis by the applicant of master's degree has been sufficiently recognized.
5. If academic rank, contents and future developments of master's thesis are sufficiently understood.
6. If questions and answers are properly carried out in presentation.

#### Curriculum Policy

In this Degree Program, subject to the students who have the knowledge to graduate from faculty/department, the curriculum shall be organized aiming at training the human resources that research the process and mechanism of various phenomena in global environment, or earth evolution from the birth of the Earth up to the present and have an ability to gain a comprehensive understanding from various aspects including human environment. For this purpose, this Degree Program is composed of necessary area of expertise (including cooperated graduate school). In all such areas, the curriculum has been organized in order to learn the specialized knowledge relating to specific area necessary to achieve the diploma policy mentioned above and acquire foreign language skills, communication skills, problem-solving ability, ethical view and a wide basic knowledge in the area of geosciences.

Curriculum organization policy	<p>As a specialized fundamental course, in addition to compulsory courses common to programs and selective compulsory courses common to courses, Inter-disciplinary Foundation Courses, Degree Programs' Common Courses and Graduate General Education Courses as elective compulsory courses shall be registered and broad culture and basic knowledge and skills of agro-biological resource sciences shall be acquired.</p> <p>The specialized lectures as specialized courses in area of expertise and practical training and special research as selective compulsory courses shall be registered and basic knowledge and skills of the area of expertise shall be learned.</p> <ul style="list-style-type: none"> <li>• Regarding setting of course classification, the curriculum shall be divided into "Foundation Subjects for Major" and "Major Subjects". "Foundation Subjects for Major" shall deal with the contents common to degree programs, and the basic knowledge relating to geosciences shall be acquired. In "Major Subjects", specialized lectures/practical training in each area shall be provided, through whose completion specialized knowledge in specific research areas can be acquired.</li> <li>• The students aiming at acquisition of master's degree can receive highly intensive tutorial in a series of curricula until completion of the degree, by the advisory committee composed of the chief supervisor mainly in charge of research instruction and the sub supervisor(s) who cooperate(s) with such research instruction as advisor(s).</li> <li>• Through Foundation Subjects for Major, intellect utilization ability and the ability to have a wide vision shall be acquired.</li> <li>• Through area experiments, Management competence, Communication competence, Teamwork competences, research ability, problem-solving ability and ability to explore shall be acquired.</li> </ul>
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	<ul style="list-style-type: none"> <li>•Through the courses related to foreign languages, Competence in Internationality and research ability shall be acquired.</li> <li>•Through special Topics/General Lectures in the area of expertise, research ability, problem-solving ability and ability to explore shall be acquired.</li> <li>•Through practical training courses, research ability, problem-solving ability, ability to explore, presentation/communication skills shall be acquired.</li> <li>•Through internship, Communication competence, Teamwork competences and the ability to have a wide vision shall be acquired.</li> <li>•Through special research and practical training, all of ten kinds of competences shall be acquired.</li> </ul>
Learning methods · Processes	<ul style="list-style-type: none"> <li>•In the 1<sup>st</sup> year, the Foundation Subjects for Major and the Major Subjects related to each area of expertise (special courses/comprehensive courses/practical training courses etc.) shall be taken. In the 2<sup>nd</sup> year, the Major Subjects related to each area of expertise shall be continuously taken.</li> <li>•As the selective courses, one or more credits shall be approved from Graduate General Education Courses, Inter-disciplinary Foundation Courses and Degree Programs' Common Courses.</li> <li>•Special Research I in the 1<sup>st</sup> year and Special Research II in the 2<sup>nd</sup> year shall be taken and the research toward creation of master's thesis shall be carried out.</li> <li>•Upon commencing the 1<sup>st</sup> year, for all the students the advisory committee (research supervision team) composed of the team of a chief supervisor and several sub supervisors shall be established to organize validity and problems of research plan for each student. Additionally, instruction shall be provided to confirm registered courses and acquired credits etc. The advisory committee shall participate in other master' programs, as necessary.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>•The advisory committee shall periodically evaluate the students and examine their research progress.</li> <li>•Prior to the final examination for master's degree review in the 2<sup>nd</sup> year, the interim examination shall be performed. In the interim examination, public research presentation and questions and answers shall be set. Through the contents of research presentation, degree of acquisition of basic knowledge of geosciences and survey/analysis skills, presentation ability and ability to explore problems shall be evaluated.</li> <li>•The final examination for master's degree review shall be performed for the student who has passed the interim examination and is expected to acquire necessary credits for completion.</li> </ul> <p>In the examination, public research presentation and questions and answers shall be set.</p> <p>In the committee for master's thesis review (human informatics) composed of one chief examiner and two or more sub examiners, explanation relating to master's thesis as the final examination shall be requested and the questions and answers relating to relevant matters shall be set.</p> <p>Based on these results, through consultation by all the thesis examiners, the following shall be evaluated: if the thesis satisfies degree awarding policy (DP) of this Degree Program, the contents of the thesis is worth conferring the master's (bachelor's) degree as research outcomes, and if the author of the thesis can be approved as the one who has the quality to receive the master's (bachelor's) degree.</p>

## Admission Policy

Desired students	<p>In any of the area of expertise of geosciences, the desired student shall have basic specialized have the knowledge to graduate from faculty/department, motivation to deeply explore various natural phenomena on the earth both in the past and at present and have acquired interdisciplinary knowledge for their comprehensive settlement. Especially, the student who has a deep interest in scientifically observing and analyzing natural phenomena and lab tests/observation and field work such as area observation and survey shall be welcomed. It is required that the student shall be willing to study basic science steadily and endeavor to think logically from international vision.</p>
Selection policy	<ul style="list-style-type: none"><li>•The basic knowledge and basic academic skills relating to geosciences shall be evaluated by document screening and written examination.</li><li>•The motivation for research and ability to think logically shall be evaluated by oral examination.</li></ul>

## Master's Program in Environmental Sciences

Name of the degree to be conferred	Master of Environmental Sciences
Educational purpose	It is necessary for highly specialized professionals who solve local and global issues to have a research/survey ability to analyze/understand the background of the problems from the higher/cross-sectional views, and further, an ability to suggest the solution of the said problems. In details, by fostering specialization and creativity on an international level cultivated from fusion of sciences, engineering, agricultural science and social science etc, and cultivating ability to see from a higher perspective, to practice, ability for immediate assets and communication skills, the capacity as a global leader shall be fostered.
Vision of human resources development	<ul style="list-style-type: none"> <li>•The person with management skill: the person who has high specialization in each area of expertise and multidisciplinary perspective relating to general environmental sciences and is essential for various business management such as overseas activities by firms.</li> <li>•The practical person with specialization: the person who can smoothly carry out international cooperation projects etc. for which high specialization/survey ability is required in international institutions, international cooperation agencies and overseas division etc. in firms etc.</li> <li>•The person with leadership ability: the person who can effectively carry out international negotiation/negotiation between stakeholders etc. through group skills and high scientific communication skills, while making full use of high specialization and analysis ability/problem-solving ability in order to solve local and global-scale environmental issues.</li> </ul>

### Diploma Policy

The degree of Master of Environmental Sciences is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Comprehensive ability/analysis ability: an ability to understand analyze and expect based on basic/applied science/technology relating to the issues.	① If capable of understanding the targeted issue through basic skills and applied skills of sciences, engineering, agricultural science and social science. ② If capable of carrying out analysis and expectation that leads to problem solving by grasping the issue quantitatively and qualitatively.



7. Ability to correspond to issues: an ability to collect information from academic/social vision relating to the issues and to correspond to such issues.	① If capable of appropriately collecting academic and social information relating to the issue. ② If capable of taking appropriate measures for and coping with the issues based on collected information relating to the issue.
8. Ability to suggest: an ability to investigate the solutions based on academic knowledge/social request relating to the issues.	① If capable of see systems/policies etc. from a higher perspective as well as from an academic vision relating to the issue. ② If capable of investigating the target for problem-solving with an academic and social vision relating to the issue.

#### Dissertation evaluation criteria

As the evaluation standard, the dissertation that satisfies all the following items shall be a pass as the thesis for master's degree after going through final examination.

1. The issue that can directly or indirectly contribute to solving environmental issues.
2. Having examined the conventional research outcomes relating to the issue sufficiently.
3. Indicating new knowledge in theoretical and demonstrative aspects for the issue.

As an evaluation method, the final examination for master's thesis shall be held in public and degree of completion of the thesis shall be evaluated.

As the system of examination committee, the oral examination (final examination) by the expert committee composed of three examiners. Furthermore, the knowledge and academic skills in the said area and completeness of research shall be evaluated.

The requirements for judgement as being a pass shall be as follows: completing interdisciplinary curriculum, acquiring the prescribed credits and carrying out research for master's thesis.

#### Curriculum Policy

This master's degree program shall intend to understand the mechanism of environmental issues caused on a local and global scale and to suggest their solutions and establish the curriculum to foster the ability to collect/analyze information, communication skills, to put things into practice and to suggest in addition to sciences, engineering, agricultural science and social science. In detail, in order to acquire comprehensive/analysis ability, ability to correspond to issues and ability to suggest required for diploma, especially the ability to solve the problems including water resources/aquatic environment, living resources/biodiversity, urban problems, disaster/disaster prevention etc., emphasis shall be put on fostering the ability necessary for contribution of problem solving based on the foundation and specialty of sciences, engineering, agricultural science and social science, with the ability to see from a higher perspective.

Curriculum organization policy	<p>All the courses shall be held in English in principle.</p> <p>By generally introducing active learning, the educational environment where students with diverse nationalities and academic backgrounds improve themselves through friendly rivalry.</p> <p>As a specialized fundamental course, in addition to compulsory courses common to programs and selective compulsory courses common to courses, Inter-disciplinary Foundation Courses, Degree Programs' Common Courses and Graduate General Education Courses as elective compulsory courses shall be registered and broad culture and basic knowledge and skills of agro-biological resource sciences shall be acquired. The specialized lectures as specialized courses in area of expertise and practical training and special research as selective compulsory courses shall be registered and basic knowledge and skills of the area of expertise shall be learned.</p> <p>•Compulsory courses: all the students shall acquire the basic knowledge and academic skills by completing introduction/exercises/practices courses relating to the basics of environmental sciences and comprehend, analyze and consider environmental issues in an interdisciplinary way. By firmly linking classroom lectures and practical training activities, practical ability in order to solve environmental issues shall be cultivated.</p> <p>•Seminar courses: the courses that are related to the master's thesis research, which shall be evaluated in accordance with the unified standard, while taking advantage of the characteristics of each office.</p>
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	<ul style="list-style-type: none"> <li>• Selective courses: Major Subjects established by special studies and the courses in other educational institutions including domestic and overseas universities in order to enhance specialization in each area. Within the issues, discussion among students and cooperative work shall be promoted and new inventive power as well as international understanding shall be fostered.</li> <li>• Practical training courses: Through training inside and outside Japan in which environment-related internships and inspections and workshops etc. are combined in the government, firms and NPOs etc., the ability as a practitioner shall be cultivated.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Foundation Subjects for Major : Introduction to Environmental Sciences (2 credits) and Exercises in Environmental Sciences (1 credit) shall be taken as compulsory subjects, which shall be provided in English.</li> <li>• Major Subjects: Lab Seminar in Environmental Sciences 1S~2F (2 credit for each), Thesis Seminar in Environmental Sciences 1S・1F (2 credit for each) and Thesis Seminar in Environmental Sciences 2S・2F (3 credit for each), 18 credits in total shall be taken as compulsory courses. Besides, as selective courses, the courses of 6 or more credits shall be taken.</li> <li>• One or more credit from Graduate General Education Courses, Inter-disciplinary Foundation Courses and Degree Programs' Common Courses shall be taken as compulsory courses.</li> <li>• Upon commencing the 1<sup>st</sup> year, for all the students the advisory committee (research supervision team) composed of the team of chief supervisor and several sub supervisors shall be established to organize validity and problems of research plan for each student. Additionally, instruction shall be provided to confirm registered courses and acquired credits etc.</li> <li>• The advisory committee shall participate in other master' programs, as necessary.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The advisory committee shall periodically evaluate the students and examine their research progress.</li> <li>• Along with learning compulsory courses and Major Subjects in the 1<sup>st</sup> year, the students shall start preparing master's thesis research. Its achievement shall be evaluated by examinations and reports. In the 2<sup>nd</sup> year, the Major Subjects related to each area of expertise shall be continuously learned and achievement of seminars for thesis shall be evaluated by examinations and reports and presentation. Furthermore, the interim presentation shall be held in order to evaluate the progress of the master's thesis. In this regard, expressiveness and discussion ability for the person concerned in broad areas shall be especially target for evaluation. Additionally, in the oral examination conducted by the expert committee composed of three or more members, the knowledge and academic abilities in the said areas and achievement of research shall be additionally evaluated.</li> <li>• Final examination: the requirements for judgement as being a pass shall be as follows: completing interdisciplinary curriculum in major, acquiring the prescribed credits and carrying out research for master's thesis. In details, acquisition of the following abilities shall be required: <ul style="list-style-type: none"> <li>• Vision to see from a higher perspective and multifaceted vision</li> <li>• Planning, data collection and analytical capability of scientific research in experimental science and area science</li> <li>• Design and analysis ability of research in policy science</li> <li>• Scientific writing ability</li> <li>• Communication skills in international society.</li> </ul> </li> </ul>

## Admission Policy

Desired students	<ul style="list-style-type: none"><li>•The person with basic academic skills regarded as distinguished in the course level in any area of sciences, engineering, agricultural science and social science.</li><li>•The person with motivation to receive interdisciplinary education.</li><li>•The person who has a deep interest in environmental issues and an interest in practical education toward their solutions.</li><li>•The person with sense of mission, sense of justice, sense of ethics, ability to persistently continue and flexible and strong mental power etc., as well as a wide vision in order to play an active role in international society and basic quality.</li><li>•The person with motivation to improve international communication skills such as carrying out presentation in academic conferences/international seminars.</li><li>•The person with motivation to contribute to international society by making use of expertise of environment sciences in English in the future.</li><li>•In addition to the above-mentioned, as for the working professionals, practical skills and management ability acquired by business experience so far shall also be evaluated.</li></ul>
Selection policy	<ul style="list-style-type: none"><li>•The knowledge/quality, ability, motivation and English ability in the above-mentioned “Desired Students” shall be examined.</li><li>•The students’ abilities shall be observed regarding if they can logically and clearly explain the principle of research plan and relationship with the existing research etc.</li></ul>

## Master's Program in Mountain Studies

Name of the degree to be conferred	Master of Science in Mountain Studies
Educational purpose	To train the persons who are equipped with the knowledge and skills necessary for developing prosperous and robust communities and industrial development in mountainous areas including forestry and abilities for judgement and action to be able to take accurate measures with a wide vision and expertise, in order to cope with various problems relating to natural resources such as geosphere/hydrosphere, ecosystem and forests associated with natural variation/human activities in mountainous areas.
Vision of human resources development	The persons who have learned the knowledge and skills etc. over the plural areas such natural science and social science of mountain studies, have a deep interest in various phenomena/problems in mountainous areas and specifically contribute to their solutions.
Diploma Policy	
The degree of Master of Science in Mountain Studies is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Knowledge and technical skills: an ability to acquire basic knowledge and skills relating to mountain studies and make full use of them.	If having acquired basic specialized knowledge and skills relating to mountain studies
7. Problem solving ability: an ability to scientifically understand various problems in mountainous areas and to establish specific measures to solve such problems.	If having understood various problems in mountainous areas and established concrete measures for problem solving.
8. Ability for coordination and self-expression: communication skills to be able to communicate sufficiently and express themselves accurately.	If having acquired communication skills to express themselves accurately.

9. Leadership ability: an ability to coordinate and cooperate in order to solve problems in mountainous areas and to exhibit leadership.	If capable of coordination and cooperation for problem solving of mountainous areas and exhibiting leadership.
10. International character: an ability to be able to deal with various issues of mountainous areas in international vision.	If having acquired ability to deal with various issues of mountainous areas in international vision.

#### Dissertation evaluation criteria

The dissertation that satisfies all the following items shall be a pass as the thesis for master's degree after going through final examination.

Additionally, the thesis shall be examined by the committee for master's thesis review (composed of one chief examiner and two or more sub examiners). While the instructor shall be the sub-examiner in charge of master's program in mountain studies, the instructors in charge of other degree programs can participate in such examination.

1. If the submitted master's thesis is high in degree of completion including descriptions, logic expansion and charts.
2. If the contents of the master's degree thesis have international vision and their levels are high enough as the research in the area of mountain studies.
3. If the references are appropriately cited for the master's thesis.
4. If the contents of research for master's thesis can correspond to solution of various problems in mountainous areas.
5. If academic rank, contents and future developments of master's thesis are sufficiently understood.
6. If conducting questions and answers appropriately based on communication skills for appropriate presentation and sufficient communication in presentation.

#### Curriculum Policy

Basic knowledge and skills for mountain studies and specialized knowledge, skills and research methodologies necessary to resolve the real problems relating to bioresources shall be learned. The curriculum shall be organized in order that the students can learn the methods to analyze and summarize the data obtained by research/surveys though the said methodologies and communication skills and presentation ability can be acquired.

Curriculum organization policy	<p>As a specialized fundamental course, in addition to compulsory courses common to programs and selective compulsory courses common to courses, Inter-disciplinary Foundation Courses, Degree Programs' Common Courses and Graduate General Education Courses as elective compulsory courses shall be registered and broad culture and basic knowledge and skills of agro-biological resource sciences shall be acquired. The specialized lectures as specialized courses in area of expertise and practical training and special research as selective compulsory courses shall be registered and basic knowledge and skills of the area of expertise shall be learned.</p> <ul style="list-style-type: none"> <li>• In order to be able to acquire both the broad scope of education and high degree of expertise essential for mountain environment conservation and management, Major Core Subjects and Foundation Subjects for Major shall be established. The Major Core Subjects shall include courses from three different areas: geological, biological and anthropological areas. The Major Core Subjects within each area will equip students with highly specialized skills and knowledge for specific areas. At the same time, students should take courses across multiple areas to cultivate interdisciplinary and practical imaginative ability and the ability to identify issues.</li> <li>• By compiling the above-mentioned learning and the research of the area of expertise as the master's degree thesis, the items provided in the policy of degree award shall be achieve.</li> </ul>
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Learning methods • Processes	<p>The standard learning year shall be two years. As the requirements to complete master's degree, it is necessary to acquire the following 30 or more credits, to put the research outcomes together in master's thesis and to pass the final examination.</p> <ul style="list-style-type: none"> <li>•Foundation Subjects for Major shall be organized for the purpose of acquiring basic knowledge, approaches and practical skills relating to mountain studies and Introduction to Mountain Studies and Exercises shall be offered through the collaboration with other universities. The compulsory courses shall include Introduction to Mountain Science A,B (1 credit for each), Mountain Science Area Course A, B (1 credit for each), Area Safety Management (1 credit), Graduate General Education Courses (1 or more credits), Interdisciplinary Foundation Courses and Degree Programs' Common Courses (1 credit for each), 8 credits in total. The selective courses shall be registered from Mountain Environment Internship I, II, Advanced Research Area Course, Advanced Lecture in Mountain Studies for one or more credits.</li> <li>•Major Core Subjects shall be provided for the purpose of acquiring highly specialized knowledge/skills etc. in geological, biological and anthropological areas. The compulsory courses shall be from Mountain Studies Seminar IA, IB, IIA, IIB, Mountain Science Research I, II, and Introduction to Environmental Sciences, 15 credits in total. The selective courses shall be taken from Major Subjects of Master's Program in Mountain Studies, 2 or more credits of each area (geological, biological and anthropological areas).</li> <li>•Research instruction shall be provided by one chief supervisor and 2 or more sub supervisors. At least one sub instructor may be selected from collaborative universities. Additionally, the advisory committee (AC) composed of one chief instructor and 2 or more sub instructors shall be established to organize validity and problems of research plan for each student by holding meetings to investigate problems. Furthermore, instruction shall be provided to confirm registered courses and acquired credits etc.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>•The advisory committee shall periodically evaluate the students and examine their research progress.</li> <li>•Interim evaluation shall be carried out by the instructors of different area of expertises in addition to chief supervisor and sub supervisors. In principle such evaluation shall be carried out at a combined annual reporting session by the relevant universities at the end of each fiscal year in order that students present research outcomes for interim evaluation.</li> <li>•In principle such evaluation shall be carried out at a combined annual reporting session by the relevant universities at the end of each fiscal year in order that students present research outcomes for preliminary examination. The committee for master's thesis review (human informatics) composed of one chief examiner and two or more sub examiners shall examine the thesis through dissertation examination and oral examination if the students have abilities suitable for master's degree (in mountain studies) in light of the above-mentioned degree awarding policy. Additionally, public presentation shall be carried out.</li> </ul>
Admission Policy	
Desired students	<ul style="list-style-type: none"> <li>•The persons who have interest in mountainous areas and motivation to contribute to solving problems that mountainous areas confront to are required.</li> <li>•The persons who have basic academic skill relating to natural science and social science, and motivation to acquire the knowledge and skills etc. over the plural areas of mountain studies in addition to specialized knowledge.</li> <li>•The persons from a broad areas shall be accepted including working professionals.</li> </ul>
Selection policy	<ul style="list-style-type: none"> <li>•The knowledge/quality, ability, motivation and English ability in the above-mentioned "Desired Students" shall be examined.</li> <li>•The students' abilities shall be observed regarding if they can logically and clearly explain the principle of research plan and relationship with the existing research etc.</li> </ul>



## Master's Program in Life Science Innovation (Food Innovation)

Name of the degree to be conferred	Master of Food Innovation
Educational purpose	This program shall train “the persons with basic ability for doctoral thesis research and highly specialized professionals in order to acquire the ability to explore the functionality of food, the ability to process foods to efficiently manifest their effects, the nutritional and physiological ability to evaluate the effects of their functionality on the human body, and the functional food market and aim to become globally active human resources who can create new value for food”. Innovative functional food development is expected to contribute to realization of a healthy and long-lived society, and promotion of life innovation that contributes to international competitiveness and economic growth.
Vision of human resources development	Highly specialized professionals who acquire cross-sectional and bird's eye view of life science relating to life science innovation, acquire world-class advanced specialized research capabilities and open new developments in life science research using bioresources in the areas of R&D and management of functional foods and medicinal cosmetics.

### Diploma Policy

The degree of Master of Food Innovation is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Innovation ability: Ability to open up new developments in the areas of life science	① If the basic concepts about the areas of life science were widely gained and problems are interpreted from a higher perspective ② If one has the motivation to gain new skills and knowledge instead of being bound by one's area of expertise ③ If the social needs in the areas of life science are understood ④ If appropriate research plans are drawn up and carried out to solve Food Innovation Science issues
7. Specialized knowledge: Advanced knowledge and command of an area of expertise	① If leading-edge specialized knowledge about Food Innovation Science was gained ② If gained knowledge was put to use to solve issues

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8. Advanced practical English: Practical English proficiency that works in the areas of life science
- ① If an accurate description of one's understandings or opinions about problems in the areas of life science is provided in English
  - ② If written research proposals, reports, etc. are created in English
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#### Dissertation evaluation criteria

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【Level standards required for the degree thesis】 The degree thesis must be the results of work in which the diploma applicant took the initiative and must contain unprecedented research findings that contribute to make strides in the areas of Food Innovation Science. The degree thesis must be written logically and scientifically and must be constructed in an appropriate format as a degree thesis.

【Review board members】 A thesis is reviewed by an exclusive board formed by one chief reviewer and two or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the two or more sub-reviewers, one or more faculty members qualified to supervise the research in the Program must be included. The three or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the three or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain their degree thesis content and then questioned by exclusive board members about what they have explained. During this examination, in which the applicant is required to make a presentation about their degree thesis logically and scientifically, the applicant is evaluated to see if they can convince the reviewers sufficiently by answering the reviewers' questions using the specialized knowledge of the areas of Food Innovation Science with insight.

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#### Curriculum Policy

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Under the education and research environment where there is the active participation by not only the faculty members of Tsukuba but also by collaborative graduate school faculty members from the research institutes or such which belong to the Tsukuba Life Science Promotion Association, students learn about unsolved issues of the society and get engaged in research activities to pursue to open up new strides in the areas of Food Innovation Science. The Master's Program in Life Science Innovation, whose purpose is to cultivate globally active highly specialized professionals, offers all lectures in English and organizes lectures and seminars taught by researchers who are active in the front lines and belong to overseas research institutes. To cultivate the ability to have the big picture in mind from a cross-disciplinary perspective, students benefit from the General Foundation Subjects which cover all-around basic concepts in the areas of life science. As part of the career training, the curriculum includes internship subjects and other subjects such as for learning the operations of research organizations, etc. Moreover, Major Subjects for cultivating the expert abilities in food innovation are also organized.

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Curriculum organization policy	<ul style="list-style-type: none"> <li>• Curriculum of food innovation area shall be composed of Major Subjects, basic courses common to six program areas of this Degree Program (Disease mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics and Biomolecular Engineering) and Graduate General Education Courses. In Major Subjects, other than the lectures to cultivate professional ability relating to food innovation, students shall receive research supervisor relating to food innovation in the laboratory to which each student belongs.</li> <li>• Competence of knowledge application is gained with master's thesis creation, etc.</li> <li>• Management competence is gained with "Regulatory Science", etc.</li> <li>• Communication competence is gained with "Master's Research in Life Science Innovation", etc.</li> <li>• Teamwork competence is gained with "Team Learning in Life Science Innovation (Basic)", etc.</li> <li>• Competence in Internationality is gained with "Master's Life Science Innovation Seminar", etc.</li> <li>• Innovation ability is gained with Major Subjects, "Master's Research in Life Science Innovation", etc.</li> <li>• Specialized knowledge is gained with Major Subjects, etc.</li> <li>• Advanced practical English is gained with General Foundation Subjects, Major Subjects, etc.</li> </ul>
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Learning methods • Processes	<ul style="list-style-type: none"> <li>• After learning how to gather information and understanding social needs under the supervision of supervisory faculty members, students draw up and carry out an appropriate research plan for solving food innovation issues and round up the results into research outcomes.</li> <li>• Students acquire English presentation skills in the process of presenting their research outcomes at the T-LSI student workshop and other events.</li> <li>• Through General Foundation Subjects and Graduate General Education Courses, students widely gain the basic concepts in the areas of life science and improve communication ability in English in order to be capable of using knowledge not bound by one's area of expertise.</li> <li>• Practical abilities as working individuals are cultivated through internships.</li> <li>• Specialized knowledge is gained through Major Subjects.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the interim evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for master's thesis creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Four months before the expected completion of the Program, the final evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered four months before the expected completion of the Program, the preliminary review for the master's thesis is conducted by the chief reviewer and two sub-reviewers.</li> <li>• At the final exam which is administered two months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and two sub-reviewers based on the presentation and question-and-answer session for the master's thesis content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who possess the motivation to make innovations in the areas of Food Innovation Science and have the sufficient qualities to gain the specialized knowledge necessary to attain such innovations, and advanced practical English.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess bachelor's degree level knowledge necessary for learning in the Master's Program in Life Science Innovation and the ability to write about research backgrounds and future prospects in English.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for learning in the Master's Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation to make innovations in the areas of Food Innovation Science and the ability to explain and debate in English.</li> </ul>

## Master's Program in Life Science Innovation (Environmental Management)

Name of the degree to be conferred	Master of Environmental Management
Educational purpose	Life, including humanity, is determined to survive and grow depending on the surrounding environmental conditions. In recent years, keywords such as food safety and sustainable use of bioresources, which have attracted social attention are closely related to appropriate control of the environment. Therefore, "the persons with basic ability for doctoral thesis research and highly specialized professionals aiming at becoming researchers and learn widely from the relationship between life survival and growth and environmental conditions, that is, from microscopic environmental physiology to microscopic environmental ecology on a global scale, and the latest expertise and research basic ability on environmental impact assessment and control, and play an active role globally in the area of research and development related to appropriate control of the environment" shall be fostered.
Vision of human resources development	Highly specialized professionals who acquire cross-sectional and bird's eye view of life science relating to life science innovation, acquire world-class advanced specialized research capabilities and open new developments in life science research using bioresources in the areas of R&D subject to environment/energy as global issues and their management.
Diploma Policy	
The degree of Master of Environmental Management is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Innovation ability: Ability to open up new developments in the areas of life science	① If the basic concepts about the areas of life science were widely gained and problems are interpreted from a higher perspective ② If one has the motivation to gain new skills and knowledge instead of being bound by one's area of expertise ③ If the social needs in the areas of life science are understood ④ If appropriate research plans are drawn up and carried out to solve Environmental Control Science issues

7. Specialized knowledge: Advanced knowledge and command of an area of expertise	① If leading-edge specialized knowledge about Environmental Control Science was gained ② If gained knowledge was put to use to solve issues
8. Advanced practical English: Practical English proficiency that works in the areas of life science	① If an accurate description of one's understandings or opinions about problems in the areas of life science is provided in English ② If written research proposals, reports, etc. are created in English

#### Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree thesis must be the results of work in which the diploma applicant took the initiative and must contain unprecedented research findings that contribute to make strides in the areas of Environmental Control Science. The degree thesis must be written logically and scientifically and must be constructed in an appropriate format as a degree thesis.

【Review board members】 A thesis is reviewed by an exclusive board formed by one chief reviewer and two or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the two or more sub-reviewers, one or more faculty members qualified to supervise the research in the Program must be included. The three or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the three or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain their degree thesis content and then questioned by exclusive board members about what they have explained. During this examination, in which the applicant is required to make a presentation about their degree thesis logically and scientifically, the applicant is evaluated to see if they can convince the reviewers sufficiently by answering the reviewers' questions using the specialized knowledge of the areas of Environmental Control Science with insight.

#### Curriculum Policy

Under the education and research environment where there is the active participation by not only the faculty members of Tsukuba but also by collaborative graduate school faculty members from the research institutes or such which belong to the Tsukuba Life Science Promotion Association, students learn about unsolved issues of the society and get engaged in research activities to pursue to open up new strides in the areas of Environmental Control Science. The Master's Program in Life Science Innovation, whose purpose is to cultivate globally active highly specialized professionals, offers all lectures in English and organizes lectures and seminars taught by researchers who are active in the front lines and belong to overseas research institutes. To cultivate the ability to have the big picture in mind from a cross-disciplinary perspective, students benefit from the General Foundation Subjects which cover all-around basic concepts in the areas of life science. As part of the career training, the curriculum includes internship subjects and other subjects such as for learning the operations of research organizations, etc. Moreover, Major Subjects for cultivating the expert abilities in environmental control are also organized.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Curriculum of environmental management area shall be composed of Major Subjects, basic courses common to six program areas of this Degree Program (Disease mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics and Biomolecular Engineering) and Graduate General Education Courses. In Major Subjects, other than the lectures to cultivate professional ability relating to environmental management, students shall receive research supervisor relating to environmental management in the laboratory to which each student belongs.</li> <li>• Competence of knowledge application is gained with master's thesis creation, etc.</li> <li>• Management competence is gained with "Regulatory Science", etc.</li> <li>• Communication competence is gained with "Master's Research in Life Science Innovation", etc.</li> <li>• Teamwork competence is gained with "Team Learning in Life Science Innovation (Basic)", etc.</li> <li>• Competence in Internationality is gained with "Master's Life Science Innovation Seminar", etc.</li> <li>• Innovation ability is gained with Major Subjects, "Master's Research in Life Science Innovation", etc.</li> <li>• Specialized knowledge is gained with Major Subjects, etc.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Advanced practical English is gained with General Foundation Subjects, Major Subjects, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• After learning how to gather information and understanding social needs under the supervision of supervisory faculty members, students draw up and carry out an appropriate research plan for solving environmental control issues and round up the results into research outcomes.</li> <li>• Students acquire English presentation skills in the process of presenting their research outcomes at the T-LSI student workshop and other events.</li> <li>• Through Foundation Subjects for Major and Graduate General Education Courses, students widely gain the basic concepts in the areas of life science and improve communication ability in English in order to be capable of using knowledge not bound by one's area of expertise.</li> <li>• Practical abilities as working individuals are cultivated through internships.</li> <li>• Specialized knowledge is gained through Major Subjects.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the interim evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for master's thesis creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Four months before the expected completion of the Program, the final evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered four months before the expected completion of the Program, the preliminary review for the master's thesis is conducted by the chief reviewer and two sub-reviewers.</li> <li>• At the final exam which is administered two months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and two sub-reviewers based on the presentation and question-and-answer session for the master's thesis content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who possess the motivation to make innovations in the areas of Environmental Control Science and have the sufficient qualities to gain the specialized knowledge necessary to attain such innovations, and advanced practical English.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess bachelor's degree level knowledge necessary for learning in the Master's Program in Life Science Innovation and the ability to write about research backgrounds and future prospects in English.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for learning in the Master's Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation to make innovations in the areas of Environmental Control Science and the ability to explain and debate in English.</li> </ul>



## Master's Program in Life Science Innovation (Biomolecular Engineering)

Name of the degree to be conferred	Master of Bioengineering
Educational purpose	This program shall train “the persons with basic ability for doctoral thesis research and highly specialized professionals who have thorough knowledge about the application development of biomolecules to the functional materials, acquire management technology related to them, can contribute to realization of innovative analytical technologies and functional materials with high environmental and biocompatibility and plan an active role globally” .
Vision of human resources development	Highly specialized professionals who acquire cross-sectional and bird's eye view of life science relating to life science innovation, acquire world-class advanced specialized research capabilities, use all bioresources and globally play an active role in the areas of R&D of innovative functional materials that open up new developments in life science research using bioresources.

### Diploma Policy

The degree of Master of Bioengineering is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Innovation ability: Ability to open up new developments in the areas of life science	① If the basic concepts about the areas of life science were widely gained and problems are interpreted from a higher perspective ② If one has the motivation to gain new skills and knowledge instead of being bound by one's area of expertise ③ If the social needs in the areas of life science are understood ④ If appropriate research plans are drawn up and carried out to solve bioengineering issues
7. Specialized knowledge: Advanced knowledge and command of an area of expertise	① If leading-edge specialized knowledge about bioengineering was gained ② If gained knowledge was put to use to solve issues
8. Advanced practical English: Practical English proficiency that works in the areas of life science	① If an accurate description of one's understandings or opinions about problems in the areas of life science is provided in English ② If written research proposals, reports, etc. are created in English

## Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree thesis must be the results of work in which the diploma applicant took the initiative and must contain unprecedented research findings that contribute to make strides in the areas of Biomolecular materials field. The degree thesis must be written logically and scientifically and must be constructed in an appropriate format as a degree thesis.

【Review board members】 A thesis is reviewed by an exclusive board formed by one chief reviewer and two or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the two or more sub-reviewers, one or more faculty members qualified to supervise the research in the Program must be included. The three or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the three or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain their degree thesis content and then questioned by exclusive board members about what they have explained. During this examination, in which the applicant is required to make a presentation about their degree thesis logically and scientifically, the applicant is evaluated to see if they can convince the reviewers sufficiently by answering the reviewers' questions using the specialized knowledge of the areas of Biomolecular Materials Field with insight.

## Curriculum Policy

Under the education and research environment where there is the active participation by not only the faculty members of Tsukuba but also by collaborative graduate school faculty members from the research institutes or such which belong to the Tsukuba Life Science Promotion Association, students learn about unsolved issues of the society and get engaged in research activities to pursue to open up new strides in the areas of Biomolecular Materials Field. The Master's Program in Life Science Innovation, whose purpose is to cultivate globally active highly specialized professionals, offers all lectures in English and organizes lectures and seminars taught by researchers who are active in the front lines and belong to overseas research institutes. To cultivate the ability to have the big picture in mind from a cross-disciplinary perspective, students benefit from the General Foundation Subjects which cover all-around basic concepts in the areas of life science. As part of the career training, the curriculum includes internship subjects and other subjects such as for learning the operations of research organizations, etc. Moreover, Major Subjects for cultivating the expert abilities in biomolecular materials are also organized.

Curriculum organization policy	<ul style="list-style-type: none"><li>• Curriculum of biomolecular engineering area shall be composed of Major Subjects, basic courses common to six program areas of this Degree Program (Disease mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics and Biomolecular Engineering) and Graduate General Education Courses. In Major Subjects, other than the lectures to cultivate professional ability relating to biomolecular engineering, students shall receive research supervisor relating to environmental management in the laboratory to which each student belongs.</li><li>• Competence of knowledge application is gained with master's thesis creation, etc.</li><li>• Management competence is gained with "Regulatory Science", etc.</li><li>• Communication competence is gained with "Master's Research in Life Science Innovation", etc.</li><li>• Teamwork competence is gained with "Team Learning in Life Science Innovation (Basic)", etc.</li><li>• Competence in Internationality is gained with "Master's Life Science Innovation Seminar", etc.</li><li>• Innovation ability is gained with Major Subjects, "Master's Research in Life Science Innovation", etc.</li><li>• Specialized knowledge is gained with Major Subjects, etc.</li><li>• Advanced practical English is gained with General Foundation Subjects for Major, Major Subjects, etc.</li></ul>
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Learning methods • Processes	<ul style="list-style-type: none"> <li>• After learning how to gather information and understanding social needs under the supervision of supervisory faculty members, students draw up and carry out an appropriate research plan for solving biomolecular materials issues and round up the results into research outcomes.</li> <li>• Students acquire English presentation skills in the process of presenting their research outcomes at the T-LSI student workshop and other events.</li> <li>• Through General Foundation Subjects and Graduate General Education Courses, students widely gain the basic concepts in the areas of life science and improve communication ability in English in order to be capable of using knowledge not bound by one's area of expertise.</li> <li>• Practical abilities as working individuals are cultivated through internships.</li> <li>• Specialized knowledge is gained through Major Subjects.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the interim evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for master's thesis creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Four months before the expected completion of the Program, the final evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered four months before the expected completion of the Program, the preliminary review for the master's thesis is conducted by the chief reviewer and two sub-reviewers.</li> <li>• At the final exam which is administered two months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and two sub-reviewers based on the presentation and question-and-answer session for the master's thesis content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who possess the motivation to make innovations in the areas of Biomolecular materials field and have the sufficient qualities to gain the specialized knowledge necessary to attain such innovations, and advanced practical English.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess bachelor's degree level knowledge necessary for learning in the Master's Program in Life Science Innovation and the ability to write about research backgrounds and future prospects in English.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for learning in the Master's Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation to make innovations in the areas of Biomolecular materials field and the ability to explain and debate in English.</li> </ul>

## Doctoral Program in Biology

Name of the degree to be conferred	Doctor of Philosophy in Science
Educational purpose	Based on understanding diversity of the biological world, by fostering the human resources that have an ability to gain a comprehensive understanding of universality and uniqueness in individual living things from biological perspectives, we shall aim at producing researchers in biology area and the world top leaders who can play an active role in research/development site in life science area.
Vision of human resources development	<p>The human resources who have the following abilities shall be fostered:</p> <ul style="list-style-type: none"> <li>•Capable of understanding the trend in fundamental research in various areas of natural science.</li> <li>•Capable of logically grasping the biological world and phenomenon and establishing the process from problem setting/ to problem solution from biological perspectives.</li> <li>•Capable of achieving internationally competent academic results by elucidating the basic principle behind problems.</li> </ul>
Diploma Policy	
The degree of Doctor of Philosophy in Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Use of natural science: an ability to understand and make use of the trend of fundamental research of natural science with a broad vision.	Can understand and utilize the trend of basic research in various fields of natural science with a broad vision?

7. Advanced research ability relating to biology: advanced research ability to establish/carry out biological research process.	Having an ability to logically grasping the biological world and phenomenon, an ability to establish the process from problem setting to problem solution and an advanced research ability to appropriately carry out research process?
8. Total ability as a PhD in Science: an ability to achieve international results.	Having research ability to achieve internationally acceptable academic results, presentation ability, communication skills and an ability to create dissertation?

#### Dissertation evaluation criteria

The dissertation that satisfies all the following items shall be a pass as the dissertation for doctoral degree after going through preliminary examination, dissertation examination and final examination. The preliminary examination shall be performed by the preliminary examination committee composed of one chief examiner and three sub examiners, dissertation examination and final examination by dissertation examination committee composed of one chief examiner and three sub examiners, respectively. Additionally, as appropriate the faculty member(s) of other doctoral programs and the ones from other universities are able to participate in such examination as sub examiner(s).

1. If the real problems of biology are set with the basic scientific view or a view that anticipate their applications.
2. If the research methods such as theory, experiments and surveys used to explore problems and the methods to analyze the data acquired is scientifically appropriate in light of international standard.
3. If the points of argument from problem setting to conclusions are demonstratively and logically deployed in English.
4. If internationally competent academic results for the problems set are acquired and the basic principle behind problems are elucidated or the methods to solve the problems with a view that anticipate their applications.
5. If the dissertation is presentable as a dissertation for doctor's degree.

#### Curriculum Policy

Based on understanding diversity of the biological world, in order to acquire advanced ability to elucidate the basic principle of biological phenomenon, the curriculum shall be organized which is composed of eight area of expertise including Taxonomy & Evolution, Ecology, Plant development & physiology, Animal development & physiology, Molecular cell biology, Genome informatics, Advanced cell biology (cooperated graduate school), Advance molecular biology (cooperated graduate school).

Curriculum organization policy	<ul style="list-style-type: none"> <li>• In Seminars of each area of expertise, intensive reading of the newest and latest articles shall be performed. Through this, bioethics, research management ability and communication skills shall be acquired, basic natural scientific understanding of life ethics and life phenomena shall be deepened. Additionally, advanced research ability relating to biology (ability to foresee, ability to analyze, presentation ability) shall be acquired.</li> <li>• The methods to create research dissertation /doctoral dissertation in Thesis Research of each area of expertise shall be instructed. Through these, examination of validity of the conclusions derived from the actual experiments/research and comparison with the preceding research shall be instructed and an ability to achieve international results (total ability as a doctor) shall be trained.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• The standard learning year shall be three years. As the requirements to complete doctoral degree, it is necessary to acquire 12 or more credits of Seminars and Thesis Research in each area of expertise, to put the research outcomes together in doctoral dissertation and to pass the final examination.</li> <li>• One faculty member appointed by the program leader and two or more faculty members related to the research field shall be sub-supervisors.</li> <li>• Through research supervision system (advisory committee) by three or more sub supervisors in addition to practical education/research supervision by supervisor, the learning effects and research progress of students and the situations of their courses etc. shall be supervised. The advisory committee member can be participated from other doctoral programs as necessary.</li> </ul>

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Preliminary examination for doctoral dissertation: research presentation and questions and answers shall be set. Through the contents of research presentation, degree of acquisition of advanced survey/analysis skills relating biology aiming at elucidating basic principle biological phenomenon, presentation ability and ability to explore problems shall be evaluated. Additionally, through questions and answers, deep knowledge in the biology of expertise and ability to understand shall be evaluated.</li> <li>• Doctoral dissertation examination: the students who passed preliminary examination for doctoral dissertation and taken 12 or more credits shall submit the doctoral thesis. The dissertation examiner shall examine the doctoral dissertation submitted.</li> <li>• Final doctoral dissertation examination: By asking for explanation relating to the dissertation, questions and answers regarding relevant matters shall be performed. Based on these results, through consultation by all the dissertation examiners, the following shall be evaluated: if the contents of the dissertation are worth conferring the doctoral (PhD in Science) degree as research outcomes, and if the author of the dissertation can be approved as the one who has the quality to receive the doctoral (PhD in Science) degree.</li> </ul>
Admission Policy	
Desired students	<p>The desired student shall be the one who has a deep interest in biological world and phenomenon, finds the real problems with strong spirit of inquiry, has motivation to work on solution for such problems and have communication skills to be able to explain the research outcomes and activities in a way easy to understand and foreign language skills to be able to transmit them to the world.</p>
Selection policy	<p>Various kinds of selection methods, such as general entrance examination (for the applicants from University of Tsukuba and other universities), special selection of international students and special selection of working individuals etc., shall be adopted. Through the document submitted and oral examination and the results of the interim examination of the master's course etc., the following abilities shall be evaluated:</p> <ul style="list-style-type: none"> <li>• For the applicants from University of Tsukuba (general entrance examination and special selection of international students), high basic knowledge and research ability, and suitability relating to biology shall be evaluated by the interim examination of the master's course etc.</li> <li>• For off-campus students (general entrance examination and special selection for international students), high basic knowledge about biology, research ability, and aptitude will be evaluated by submitted documents and oral examination, and English language ability will be evaluated by the score of the English proficiency test.</li> </ul>



## Doctoral Program in Agricultural Sciences

Name of the degree to be conferred	Doctor of Philosophy in Agricultural Science
Educational purpose	Highly specialized professionals/researchers who acquire a broad knowledge in agricultural sciences comprehensively, and issue-pursuing and problem-solving abilities, and the capability to independently conduct research, providing grounds for solving problems related to agriculture, food, environment on a global scale.
Vision of human resources development	Through this program, the human resources who can propose/implement internationally consistent solutions for global issues, and the ones that guarantee the sustainability of local communities for domestic problems, in governmental organizations as well as industries. Furthermore, such human resources shall be the resources for research/education in universities.
Diploma Policy	
The degree of Doctor of Philosophy in Agricultural Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Ability to execute research: an ability to be equipped with the latest expertise in agricultural sciences and set/carry out creative research tasks.	① If having the research outcomes that can be regarded as creativity of new knowledge based on accurate learning in the area of expertise. ② If capable of expecting creativity of knowledge that contributes to sustainable development of agricultural sciences
7. Specialized knowledge and Operational power: Leading-edge and advanced specialized knowledge and command of the agricultural sciences	① If being equipped with a broad expertise in the area of agricultural sciences. ② If capable of acquiring leading edge and advanced specialized knowledge in the area of expertise and utilizing it for research and problem solving.

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| 8. Ability to implement research outcomes in society: ethical view and ethical knowledge appropriate for researchers in agricultural sciences and deep ethical knowledge in the area of expertise. | ① If sufficiently understanding and complying with the procedure necessary for ethics for researchers and ethics for engineers and research.<br>② If having deep interest and knowledge for ethical issues relating to the area of expertise |
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#### Dissertation evaluation criteria

The dissertation that satisfies all the following items shall be a pass as the thesis for doctoral degree after going through final examination in doctoral thesis examination committee composed of four or more members.

1. If The research tasks of the dissertation is clearly indicated and has academic or social significance in the related area of agriculture sciences doctoral program.
2. If the literature and data used shall be appropriately presented and evaluated upon exploring research tasks and appropriately referred for development of points of argument.
3. If the research methods such as theories, experiments, surveys, simulation and trial production/preliminary trial etc. adopted in order to explore research tasks are appropriate.
4. If the points of argument from problem setting to conclusion are unfolded demonstratively and logically. Additionally, if the conclusions derived have novelty and social utility in the relevant area of agricultural sciences degree program.
5. If the dissertation is presentable as a thesis for master's degree.

#### Curriculum Policy

In each area of expertise relating to agricultural science as a comprehensive science, the curriculum shall be organized in order to systematically acquire an ability to independently plan and promote research/practices, an ability to integrate and an ability to announce the plans/drafts/doctoral thesis that can receive internationally high evaluation.

< Subprogram in Advanced Agricultural Technology and Science cooperated with NARO >

The scientists who actively work in the front lines of agricultural sciences of National Agriculture and Food Research Organization (NARO) as national research and development agency who are teachers of the Cooperative Graduate school. The students can acquire advanced agricultural technology such as establishment of comprehensive technology system to support basic structure of industry of agriculture in Japan and vitalization of local communications to realize sustainable food supply.

Curriculum organization policy	<ul style="list-style-type: none"> <li>•The curriculum shall be organized for the students in order to acquire professional ability relating to bioresources such as food and environment/resources/energy etc. and to cultivate an ability to conclude for problem solving on a global scale, research conducted from a global vision and an ability for localization to connect between the sites that have individually different situations.</li> <li>•The curriculum shall have students acquire communication skills, response capabilities to ethical issues, management ability and a quality of leadership by acquiring two or more credits of Graduate General Education Courses other than the Dissertation as compulsory courses.</li> <li>•The curriculum shall have students enhance international communication skills through area observation and surveys in foreign countries by overseas area practical training and motivation to the world through agricultural sciences.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>•The students shall acquire deep understanding of specialized knowledge and presentation ability/communication skills, high ethical view in research activities and an ability to solve the issues of high needs in society by setting the Dissertation as compulsory courses, and conducting lectures of bidirectional and interactive lectures between small number of supervisors/graduated students.</li> <li>•By encouraging students to participate in lectures and submit thesis to international journals, the instruction to acquire international communication skills with English ability shall be provided.</li> </ul>

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• By establishing advisory committee composed of three or more supervisors in the program for each student after enrollment, hearing shall be conducted once or more in a year and advice for research promotion shall be provided. The advisory committee shall participate in other master' programs, as necessary.</li> <li>• The supervisor shall provide instruction to acquire a research ability such as writing peer-reviewed thesis and academic conference presentation/participation in symposiums etc. and support the students' acquisition of doctoral degree by helping their various procedures upon enrollment and application for doctoral thesis and providing information about scholarships etc.</li> </ul>
	<ul style="list-style-type: none"> <li>• Instruction shall be provided as the premise of the thesis examination for doctoral degree by having students submitting the thesis peer-reviewed by academic conference until acceptance of the thesis. Through this, it shall be evaluated if the results suitable for the doctoral degree are achieved. Additionally, by holding presentation of research outcomes prior to the thesis examination, communication skills and an ability to solve problems shall be evaluated.</li> <li>• In the thesis examination, through the thesis examination for doctoral degree, presence of absence of an ability to integrate research outcomes and an ability to publicize the plan/doctoral thesis which can acquire internationally high evaluation shall be evaluated. By oral examination, distinct intentions to contribute to world shall be evaluated. through ethical view, foreign language skills, agricultural sciences</li> </ul>
Admission Policy	
Desired students	The desired student shall have basic and applied research grounds with both creativity and specialization that leads various areas in agro-biological resource sciences, and both global vision to be able to deal with current/international issues regarding food, population and environment and ability to flexibly think from bird's eye to the future, and motivation to contribute to human society.
Selection policy	<ul style="list-style-type: none"> <li>• Various kinds of selection methods, such as general entrance examination (International Agricultural Research Program, Bioresources Engineering/Economics Courses), special selection of working individuals and, special selection of international students etc., shall be adopted.</li> <li>• Based on evaluation of foreign language skills necessary for international activities and evaluation of an ability for self-expression by oral examination, research ability relating to the area of expertise, appropriateness of research plan, the human resources suitable for this Degree Program shall be selected.</li> <li>• For educational program in English and working people, Early Completion Program which students can complete learning in one year is ongoing.</li> </ul>

## Doctoral Program in Life and Agricultural Sciences

Name of the degree to be conferred	Doctor of Philosophy in Life and Agricultural Sciences
Educational purpose	The researchers and faculty members that can achieve a molecular-level understanding of biological phenomena controlled in cells and living organisms, acquire specialized ability to be able to implement technology development for the purpose of utilization of such functions and to be able to contribute to stabilize living foundation and sustainable development of human beings.
Vision of human resources development	In the area of life and agricultural sciences, the persons that have a broad knowledge and interdiscipline relating to elucidating the biological functions and their utilization and that can play an internationally active role by creative research.
Diploma Policy	
The degree of Doctor of Philosophy in Life and Agricultural Sciences is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Competence to execute research: an ability to independently set research tasks and to plan/carry out the research in the area of life and agricultural sciences.	① If capable of setting leading-edge research tasks based on the latest expertise in the area of life and agricultural sciences. ② If capable of drafting research plan to solve the research tasks and carry out the research along them.
7. Specialized knowledge and ethical view: sufficient specialized knowledge in the area of life and agricultural sciences and high ethical view in research activities.	① If having acquired leading edge and advanced specialized knowledge in the area of life and agricultural sciences. ② If having acquired ethical view and ethical knowledge suitable for the human resources that have basic research ability in the area of life and agricultural sciences.

8. Competence to publicize research outcomes: an ability to publicize the research outcomes that can receive internationally recognition.	If having compiled and published, original, cutting-edge research in an international peer-reviewed academic journal as the first-author.
9. Adaptability to conduct research: adaptability to societal needs in the area of life and agricultural sciences.	① If capable of broadly understanding social needs in the area of life and agricultural sciences. ② If capable of providing proposals to solve other research tasks in the area of life and agricultural sciences.

#### Dissertation evaluation criteria

The thesis that satisfies all the following items shall pass as a thesis for a doctoral degree after going through a preliminary examination, thesis examination, and final examination. The preliminary examination shall be performed by a committee composed of the candidates of members of the thesis examination committee (one chief examiner and three or more sub examiners). The thesis examination and the final examination shall be performed by the thesis examination committee (one chief examiner and three or more sub examiners).

1. If the research was independently carried out by the applicant and a logical and new scientific academic thesis written solely by the applicant.
2. If the thesis contains research outcomes with creativity, novelty, and high academic values in an academic area relating to life and agricultural sciences.

#### Curriculum Policy

The curriculum shall be organized for the students to systematically acquire the ability necessary to independently conduct research with a view that anticipates its applications in each respective research area of life and agricultural sciences.

Curriculum organization policy	<p>By providing advanced education in the area of life and agricultural sciences through Dissertations I to III in each research area as compulsory courses and providing instruction on conducting research by setting research tasks related to life and agricultural sciences by plurality of instructors (the chief supervisor of other degree programs shall participate as necessary), the expertise and its research methods shall be learned. Additionally, through completion of Seminar in Life and Agricultural Sciences, beyond the research area for each student, the ability to solve problems in broader areas of life and agricultural sciences shall be trained. Furthermore, through completion of Graduate General Education Courses etc., enhancement of communication skills, an ability to respond to ethical issues, management ability, educational ability and leadership ability etc. shall be promoted.</p> <p>&lt; Major Subjects &gt;</p> <ul style="list-style-type: none"> <li>•Dissertation I : An ability to understand/grasp the problems in each research area and an ability to set research tasks and plan/carry out research shall be acquired.</li> <li>•Dissertation II : An ability to carry out research and to logically think shall be enhanced. Additionally, through presentation of research outcomes in international conferences etc., English ability and presentation ability shall be acquired.</li> <li>•Dissertation III : An ability to publicize research outcomes to international academic journals by compiling them.</li> <li>• By working on research through Dissertations I to III, knowledge of each research area and high ethical view in research activities shall be acquired.</li> <li>•Practical Training for Life and Agricultural Sciences: An ability to be able to contribute to sustainable development of the world with a broad view.</li> </ul> <p>&lt; Education/Research supervision &gt;</p> <ul style="list-style-type: none"> <li>•From enrollment to completion, through education/research supervision received by the advisory committee composed of a plurality of instructors (the chief supervisor of other degree programs shall participate as necessary), specialized knowledge/abilities in general required for degree awarding shall be acquired.</li> </ul>
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Learning methods · Processes	<ul style="list-style-type: none"> <li>•The standard registration year of Dissertations I, II and III shall be the 1<sup>st</sup> year, the 2<sup>nd</sup> year and the 3<sup>rd</sup> year, respectively. By having students register systematically, the specialized knowledge/ability required for degree awarding shall be acquired in order.</li> <li>•The standard registration year of Seminar in Life and Agricultural Sciences shall be the 2<sup>nd</sup> year, in which an ability to solve various issues in the area of life and agricultural sciences shall be trained and each research issue and its meaning shall be understood from a higher perspective.</li> <li>•The advisory committee composed of three or more instructors shall be established upon enrollment and continuously provide education/research instructions for the students until completion of the degree course.</li> <li>•The advisory committee shall have the students register Graduate General Education Courses etc., as necessary.</li> <li>•The advisory committee shall have the students carry out the interim presentation at the end of the 2<sup>nd</sup> year in principle, and provide advice toward confirmation of progress status of research and compilation of dissertation thesis etc.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>•Preliminary examination: the preliminary examination committee composed of the candidates of members of the thesis examination committee (one chief examiner and three or more sub examiners) shall examine the content and style of the dissertation thesis and provide instruction for its modification etc., as necessary. Additionally, the contents of the thesis shall be presented and the questions and answers relating to relevant matters shall be conducted. The instructors in other doctoral programs shall participate in the preliminary examination committee, as necessary.</li> <li>•Thesis examination: the doctoral thesis shall be examined by the thesis examination committee (one chief examiner and three or more sub examiners). The examination standard shall be as follows: <ol style="list-style-type: none"> <li>1) If the contents of the research was independently carried out by the applicant and one distinct and logical and new scientific academic thesis written by the applicants themselves.</li> <li>2) If the thesis contains the research outcomes with creativity, novelty and high academic values in academic area relating to life and agricultural sciences.</li> </ol> </li> <li>•Final examination: Public presentation shall be performed in the presence of the thesis examination committee members to have the students present the contents of the doctoral thesis and the questions and answers shall be conducted. Subsequently, the final examination shall be conducted by oral examination, not to open to the public. The examination standard shall be as follows: <ol style="list-style-type: none"> <li>1) If having an ability to independently plan/carry out the research, and to publicize research outcomes which can acquire internationally high evaluation, using sufficient knowledge and high ethical view relating to academic area of the doctoral thesis.</li> <li>2) If having research/education ability to solve the issues of high needs in society in the academic area relating to life and agricultural sciences and communication skills to have a perfect command for negotiation in international society.</li> </ol> </li> </ul>
Admission Policy	
Desired students	<p>The desired students shall have an interest in and knowledge of various life-science phenomena in animals, plants, and microorganisms, motivation in the exploration of basic sciences that are useful in solving problems in the area of life and agricultural sciences and its application, and be able to logically, accurately, and clearly explain the research outcomes etc.</p>
Selection policy	<ul style="list-style-type: none"> <li>•Selection by oral examination shall be carried out.</li> <li>•In oral examination, the applicants shall present their master's thesis and the contents of their research so far, and research plan etc. after enrollment. By conducting questions and answers, basic/application ability, and research ability etc. shall be evaluated. Through these, the human resources suitable for this Degree Program shall be selected.</li> <li>•Working individuals and foreign students who aim at acquiring the doctoral degree as well as the students who enter immediately after completion of the master's degree shall be broadly accepted.</li> </ul>



## Doctoral Program in Bioindustrial Sciences

Name of the degree to be conferred	Doctor of Philosophy in Biotechnology
Educational purpose	<p>Based on bioindustrial sciences, the researchers shall be trained that have a research and development ability that can contribute to creation of novel bioindustry technologies and creation of new technologies and intellectual property rights etc. to ensure/distribute/use bioresources as their materials.</p> <p>Additionally, also in the social scientific aspects, such as international transaction and various kinds of regulations essential for industrial usage of bioresources and technological support/transfer to the developing countries, correspondence to social acceptance etc., the researchers shall have an ability to aim at solving problems while seeing the relationship with life ethics and protection of biodiversity with bird's eye, and practical intention with international leadership of specialized engineers and policy makers.</p>
Vision of human resources development	<p>The desired student shall have a research and development ability that can contribute to creation of novel industry technologies and intellectual property rights etc. to ensure/distribute/use bioresources as their materials from a view of bioengineering and thorough knowledge of life ethics and protection of biodiversity as the factor unique to "life" industry and the situations of various countries relating to various regulations of environmental impact assessment etc. who is of global standard and have leadership that can also respond to practical instruction of technology transfer and international strategy/policy making with their research ability/knowledge.</p>
Diploma Policy	

The degree of Doctor of Philosophy in Biotechnology is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?

6. Research ability: high knowledge and ability that can contribute to problem setting and creation of knowledge in bioengineering.	① If having acquired high knowledge in the area of biomaterials and broad basic knowledge in relevant area. ② If conducting problem setting by appropriately grasping R&D trend inside and outside Japan and having ability to be able to contribute to creation of new technologies and intellectual property rights etc.
7. Adjusting ability: deep understanding of international regulations etc. in the area of bioengineering and ability of problem-solving as the basis.	① If having deeply understood various regulations etc. relating to life ethics and protection of biodiversity in international interaction and correspondence to regulation etc. in the area of biomaterials. ② If having an ability to aim at internationally solving problems while ensuring accountability.
8. Leadership ability: an ability to take the leading position in industry creation and correspondence to society, and transfer of industry etc. in the area of bioengineering.	① If having acquired the knowledge to be able to ensure social correspondence/accountability relating to ensuring/distributing/using bioresources as the foundation in the area of biomaterials. ② If having an ability to be able to take leading position of engineers and politicians of various countries in creation of industry, technology support/transfer etc.

#### Dissertation evaluation criteria

The thesis that satisfies all the following evaluation items shall be a pass as the thesis for doctoral degree after going through the final examination. The final examination shall be conducted by the thesis examination committee composed of one chief examiner and three or more sub-chief examiners through peer-reviewing of the thesis and oral examination.

1. Title: The research outcomes are appropriately indicated.
2. Research purpose: The relationship with the research tasks after comprehensively grasping the previous research inside and outside Japan is specified, and creativity/progress of research is clearly extracted.
3. Research method: the research method is properly selected and can be verified by the third parties. In the selected research method, various regulations and research ethics are complied with.
4. The research is performed according to research outcomes/ consideration/research methods and clearly presented by charts and tables etc. In light of the conventional knowledge, consistent academic interpretation is provided. In handling the data, various regulations and research ethics are complied with.
5. Conclusions: it is concluded that the contents of the research will bring new development in the said research area.
6. The citation and use of the literature/data is appropriate and the research ethics is complied with.

#### Curriculum Policy

This Degree Program has the characteristics of its education to train the doctors with practical intention who has thorough knowledge in the aspect of social science such international interaction and correspondence to regulation, social acceptance etc., focusing on “creation of novel bioindustry technologies” and “security” /” distribution” /” use” of bioresources as its material, based on R&D ability that can contribute to creation of new technologies in bio engineering area and intellectual property rights etc.

Curriculum organization policy	<p>The R&amp;D ability shall be acquired that can contribute to creation of new technologies relating to creation of novel bioindustry technologies and security/distribution/use of bioresources as its material and intellectual property rights etc. Additionally, by setting a part of courses as the required ones, active interaction among students whose mother countries and original organizations are different shall be promoted, and the difference of social conditions and demand by industries, and possessed resources and regulations etc. shall be experienced, and global awareness shall be refined. With the research ability/ knowledge acquired through such consistent curriculum, the doctors with international leadership by which problem solving can be aimed at from both aspects of natural science and social science in the area of bioengineering.</p> <p>•By Special Research in Bioindustrial Sciences IA, IB, IIA, IIB, the students shall perform the research activities in the students’ own area of expertise, achieve the research outcomes suitable for the doctoral degree, and present their academic thesis. Through these, the students shall have deep knowledge, set the problems after appropriately grasping the trend of R&amp;D inside and outside Japan and acquire a high R&amp;D ability to be able to contribute to creation of new technologies and intellectual property rights etc.</p>
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	<ul style="list-style-type: none"> <li>• By Bioindustrial Sciences Seminar IA, IB, IIA, IIB, IIIA, IIIB, the students shall deepen the knowledge in the students' own area of expertise and acquire an ability to set the problems after appropriately grasping the trend of R&amp;D inside and outside Japan. Additionally, the students shall have a broad vision in other areas relating to bioindustrial sciences and an ability to be able to flexibly correspond to the problems of the areas other than their specialized ones as well.</li> <li>• By "Advanced International Bioindustrial Science" as the required course, the students shall acquire an ability to aim at internationally solving problems while seeing the relationship with life ethics and protection of biodiversity with bird's eye. Additionally, by setting this course as a required course, active interaction and discussion among students whose mother countries and original organizations and research areas shall be promoted. Through these, the students shall refine global awareness and acquire an ability to be able to flexibly respond to global issues.</li> <li>• By "Regulatory Aspects in Bioindustry" as Foundation Subjects for Major, the students shall understand various regulations etc. essential for industrial use of bioresources more deeply and have an ability to ensure accountability in international transaction and social correspondence etc. and to respond to adjust themselves.</li> <li>• By "Transfer of Industrial Technique on Life Science" as Foundation Subjects for Major, the students shall deepen their understanding of creation of bioindustry, social correspondence relating to security/distribution/use of bioresources, accountability from scientific knowledge and technological support/technological transfer etc. to developing countries and acquire a management ability to be able to the leading position as professional engineers and policy makers in various countries.</li> </ul>
Learning methods • Processes	<p>The advisory committee composed of three or more instructors shall be established for each student upon enrollment and continuously provide education/research instructions until completion of the degree course. The advisory committee shall conduct the interim evaluation held in the 2<sup>nd</sup> year in order to confirm the progress status of research and degree of learning achievement. Additionally, as necessary, it shall indicate additional registration of courses. The advisory committee shall participate in other master' programs, as necessary.</p> <ul style="list-style-type: none"> <li>• At the time of enrollment, the students shall learn Advanced International Bioindustrial Science, in which they can acquire an ability to adjust/instruct to aim at problem solving relating to international industry use of bioresources and active exchange and discussion with various human resources in various countries shall be promoted.</li> <li>• By having students register the seminars systematically from the 1<sup>st</sup> year to 3<sup>rd</sup> year, the specialized knowledge/ability required for degree awarding shall be acquired in order.</li> <li>• By confirming the degree of learning achievement in accordance with the interim evaluation and preliminary examination etc., and providing advice, the students shall be trained in order to be consistent with the human resources who are required for degree awarding of this Program.</li> </ul>
Evaluation of learning outcomes	<p>The learning results shall be comprehensively evaluated by the contents of presentation performed by the students in the lecture subjects and examination/report. Regarding seminars, the contents of presentation performed by the students and questions and answers shall be evaluated. In the research, in addition to the final examination, by around one year after enrollment, the interim evaluation shall be performed by the advisory committee, in which the progress in the research and relevant knowledge, and presentation ability shall be comprehensively evaluated. Additionally, voluntary learning/research activities shall also be evaluated such as the presentation and awards in academic conferences and citizen seminars, experience of TA/RA, acquisition of competitive research funds and international joint research etc.</p>

## Admission Policy

Desired students	<p>The desired students shall have the specialization in the area of bioengineering as a matter of course, a broad culture, the intention to internationally proceed research/work, and desire to have foreign language skills and communication skills that enable sufficient communication within international research groups and organizations. As for working individuals, the desired persons shall have international leadership in addition to enhancement of specialization and seek for communication skills and management ability to be able to take leading position of engineers and politicians of various countries. For the purpose of severe selection of the capacities of entrants, the oral examination by “interview form of “task presentation type” shall be focused on. Additionally, in order to check English ability, the oral presentation in English shall be set. While focusing on if the intention/ability of the student is consistent with the human resources training policy in this Program, the human resources shall be selected according to the purpose of this Specialized Course.</p>
Selection policy	<ul style="list-style-type: none"><li>•The following shall be measured: if the student can logically, accurately and clearly explain the research contents conducted so far and the actual results of business practices etc. such as the master’s course with the fixed time. Additionally, if the questions and answers are appropriate.</li><li>•Regarding the research policy after enrolling the doctoral course, the following shall be measured: if the academic significance of the research, its detailed methods, and its expected results shall be able to be explained, based on the relationship with the relevant research.</li><li>•Through questions and answers, consistency between intention/ability of the examinee and the human resources training policy in this Program, his/her motivation, his/her basic academic skills, English ability and balance in personality etc. shall be comprehensively measured.</li></ul>

## Doctoral Program in Geosciences

Name of the degree to be conferred	Doctor of Philosophy in Science
Educational purpose	The students who understand various global natural phenomena in the past and at present, have advanced expertise and research capabilities that can contribute to solution of various problems on a global scale, and can contribute to the scientific development of Japan as researchers who can internationally play an active role.
Vision of human resources development	<ul style="list-style-type: none"> <li>•The person with both a wide basic knowledge and outstanding expertise.</li> <li>•The person with an outstanding ability for areawork or a high ability for experiments/data analysis.</li> <li>•A person with problem-solving skills concerning geoscientific issues.</li> <li>•The person with distinguished foreign language skills and communication skills.</li> <li>•The person with an ability to teach in higher educational institutions such as universities.</li> <li>•A person with a high ethical perspective for research activities.</li> </ul>

### Diploma Policy

The degree of Doctor of Philosophy in Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Knowledge and comprehension ability: a highly specialized knowledge and comprehension ability related to geoscience.	① If capable of setting a specialized research tasks related to geoscience. ② If capable of planning and executing specialized research plan related to geoscience.
7. Planning ability: an outstanding planning ability to set a specialized research tasks and form a distinguished research program to execute.	① If having an advanced expertise related to geoscience. ② If having comprehensively understood the basic principle behind various events behind geoscience.

8. Problem-solving ability: an ability to confront various issues and solve the problems by exploring the basic principle behind them.	① If capable of recognizing various problems related to geoscience. ② If capable of solving various problems related to geoscience.
9. Expressiveness: an ability to express themselves based on outstanding foreign language skills and communication skills.	① If having outstanding language skills. ② If having communication skills to enable students to express the research outcomes relating to geoscience by themselves.
10. Creativity: a distinguished creativity to confront various issues in high demand for expertise with a fresh view, and apply results obtained from research.	① If capable of tackling various issues from a new viewpoint related to geoscience and achieving research outcomes. ② If having creativity to apply the research outcomes related to geoscience.

#### Dissertation evaluation criteria

The thesis that satisfies all the following evaluation items shall be a pass as the thesis for doctoral degree after going through the final examination. Additionally, the thesis shall be examined by the committee for master's thesis review (composed of one chief examiner and two or more sub examiners). While the instructor shall be the sub-examiner in charge of master's program in geoscience, the instructors in charge of other degree programs can participate in such examination.

1. If the submitted doctoral thesis is extremely high in degree of completion including descriptions, logic expansion and charts.
2. If the level of the contents of doctoral thesis is internationally high as the research in the area of geosciences.
3. If the references are appropriately cited for the doctoral thesis.
4. If contribution to the research contents of doctoral thesis by the applicant of master's degree has been sufficiently recognized.
5. If academic rank, contents and future developments of doctoral thesis are sufficiently understood.
6. If questions and answers are properly carried out in presentation.

#### Curriculum Policy

In this Degree Program, subject to the students who have the knowledge to complete the master's degree relating to geoscience, the curriculum shall be organized aiming at training the human resources that research the process and mechanism of various phenomena in global environment, or earth evolution from the birth of the Earth up to the present, have an ability to gain a comprehensive elucidation from various aspects including human environment and can internationally play an active role. For this purpose, this Degree Program is composed of area of expertise (including cooperated graduate school) necessary for this Degree Program. In all such areas, the curriculum has been organized in order to learn the specialized knowledge relating to specific area necessary to achieve the diploma policy mentioned above and acquire foreign language skills, communication skills, an ability to lead, a problem-solving ability, ethical view.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Regarding setting of course classification, the curriculum shall be divided into "Foundation Subjects for Major" and "Major Subjects". "Foundation Subjects for Major" shall especially deal with the contents common to the area of earth evolution sciences, and the basic knowledge relating thereto shall be acquired. In "Major Subjects", thesis research/practical training in each area shall be provided, through whose completion high specialized knowledge in specific research areas can be acquired.</li> <li>• The students aiming at acquisition of doctoral degree can receive highly intensive tutorial in a series of curricula until completion of the degree, by the supervision group composed of the chief supervisor mainly in charge of research instruction and the sub supervisor(s) who cooperate(s) with such research supervision as advisor(s).</li> <li>• Through advanced studies and special lectures in the area of expertise, Communication competence, Leadership competence and an ability to solve problems shall be acquired.</li> <li>• Acquire the abilities of all 10 competencies through special exercises in each specialty</li> </ul>
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	<ul style="list-style-type: none"> <li>• Acquire communication skills, leadership skills, and problem-solving skills through internships.</li> <li>• By taking research planning fieldwork courses, Management competence, Communication competence, Leadership competence, research ability, problem-solving ability, ability to explore and presentation ability shall be acquired.</li> <li>• Through Graduate General Education Courses, communication skills and research ethics shall be acquired.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• In the 1<sup>st</sup> year, Foundation Subjects for Major and the Major Subjects related to each area of expertise (advanced studies/special lectures /exercises/research planning area courses etc.) shall be taken.</li> <li>• In the 2<sup>nd</sup> year onward, research for creation of the doctoral thesis shall be carried out. Additionally, the students who register in Early Completion Program shall work on creation of the doctoral thesis from the 1<sup>st</sup> year.</li> <li>• Upon commencing the 1<sup>st</sup> year, for all the students the advisory committee (research supervision team) composed of the team of a chief supervisor and several sub supervisors shall be established to organize validity and problems of research plan for each student. Additionally, instruction shall be provided to confirm registered courses and acquired credits etc. The advisory committee shall participate in other master' programs, as necessary.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The advisory committee shall periodically evaluate the students and examine their research progress.</li> <li>• Prior to the final examination for the doctoral degree review in the final year, the preliminary examination shall be performed. In the preliminary examination, public research presentation and questions and answers shall be set. Through the contents of research presentation, degree of acquisition of high expertise of geosciences and survey/analysis skills, presentation ability and ability to explore problems shall be evaluated.</li> <li>• The student who has passed the preliminary examination and is expected to acquire necessary credits for completion shall submit the doctoral thesis. The members of the examination committee for doctoral thesis shall minutely examine the thesis submitted. Subsequently, in the final examination committee for doctoral thesis composed of one chief examiner and three or more sub examiners, explanation relating to doctoral thesis as the final examination shall be requested and the questions and answers relating to relevant matters shall be conducted. Based on these results, through consultation by all the thesis committee members, the following shall be evaluated: if the thesis satisfies degree awarding policy (DP) of this Degree Program, the contents of the thesis is worth conferring the doctoral (Doctor of Science) degree as academic results, and if the author of the thesis can be approved as the one who has the quality to receive the doctoral (Doctor of Science) degree.</li> </ul>
Admission Policy	
Desired students	<p>In any of the area of expertise of geosciences, the desired student shall have basic specialized have the knowledge to Graduate school master's course and above, motivation to deeply explore various natural phenomena on the earth both in the past and at present and have acquired interdisciplinary knowledge for their comprehensive settlement. Especially, the student who has a deep interest in scientifically observing and analyzing natural phenomena and lab tests/observation and field work such as area observation and survey shall be welcomed. It is required that the student shall be willing to study basic science steadily and endeavor to think logically from international vision.</p>
Selection policy	<ul style="list-style-type: none"> <li>• The knowledge and academic skills motivation to research, ability for logical thinking and presentation ability shall be evaluated by document screening and oral examination.</li> <li>• Selection for working individuals (including “Early Completion Program” for working individuals) and entrance examination for overseas double degree program shall be implemented.</li> </ul>

## Doctoral Program in Environmental Studies

Name of the degree to be conferred	Doctor of Philosophy in Environmental Studies
Educational purpose	The persons who logically elucidate the causes and process of the problems regarding the local/global-scale issues, based on scientific and clinical insight and can suggest the measures for problem-solving from a global view. Along with the specialization and creativity of international standard in sciences, engineering, agricultural science and social science etc, an ability to see from bird's eye, practical ability, an ability for logical constitution, expressiveness, and communication skills shall be cultivated and highly specialized practitioners, researchers and educators who can play an active role as global leaders shall be fostered.
Vision of human resources development	<ul style="list-style-type: none"> <li>•The persons who have high specialization in each area of expertise and an ability to see from a higher perspective relating to general environmental sciences and additionally, who have practical ability and management ability to play an active role as researchers/educators in universities/educators.</li> <li>•Highly specialized practitioners who are engaged in planning and carrying out international cooperation projects etc. by specialization and an ability to see from bird's eye in international institutions, international cooperation agencies and overseas division etc. in firms etc.</li> </ul>
Diploma Policy	
The degree of Doctor of Philosophy in Environmental Studies is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?

6. Specialized comprehension ability/analysis ability: an ability to quantitatively and qualitatively grasp actual conditions, comprehension/analysis ability based on scientific technologies relating to the issues	① If capable of quantitatively and qualitatively grasp actual conditions, comprehension/analysis ability based on basic/practical scientific technologies relating to the issues. ② If capable of carrying out analysis and expectation that leads to problem solving.
7. Application ability: an ability to consider the purpose and process in order to apply academic knowledge to society.	① If capable of considering scientific technological comprehension/analysis results relating to the issues in connection with problem-solving. ② If capable of investigating by connecting the academic knowledge and social request relating to the issues.
8. Suggestion ability: an ability to suggest concrete solutions relating to the issues.	① If capable of understanding systems/policies etc. relating to the issues by seeing from bird's eye. ② If capable of investigating and suggesting solutions by respecting the local characteristics etc. relating to the issues.
9. Ability for problem-solving: an ability to investigate the solutions based on academic knowledge/ social request relating to the issues.	① If capable of understanding quantitatively and qualitatively unbalanced problems of various scales relating to the issues. ② If capable of investigating the process to lead the issues to solutions based on comprehension of local characteristics and global-scaled vision.

#### Dissertation evaluation criteria

The thesis that satisfies all the following evaluation items shall be a pass as the thesis for doctoral degree after going through the final examination.

##### 【Evaluation items】

1. The positioning and originality of the academic research outcomes in the said research is clearly described.
2. The data and materials etc. presented are necessary and sufficient to draw a conclusion.
3. The hypothesis, assumption and statement are logic and reasonable.
4. The development of the research outcomes toward relevant areas are available.

##### 【Requirements】

At the time of submitting application for the thesis examination for doctoral degree (upon application for the doctoral degree), the applicants need to publicize one or more first author original papers which the applicant directly relate to the doctoral thesis; however, these shall include the original paper whose publication has been already decided. The original paper shall be publicized in domestic and overseas academic journals.

The applications of the doctoral thesis subject to Article 44, Paragraph 2 of School Regulations shall satisfy any of the following requirements; however, these shall include the original paper whose publication has been already decided.

- (1) In the case of the students of doctoral degree after completing a course of study, such students need to publicize two or more first author original papers which the applicant directly relate to the doctoral thesis; however, these shall include the original paper whose publication has been already decided.
- (2) In the case of the students of Early Completion Program for working individuals, need to publicize two or more first author original papers which the applicant directly relates to the doctoral thesis. One original paper, which has been published before the admission, is acceptable.

##### 【Examination system】

As the examination system, the preliminary examination committee shall be established, which is composed of three or more faculty members including one or more members of Degree Program Faculty Meeting, other than the chief examiner as a thesis supervisor.

The preliminary examination committee shall be held at least once, where the requirements of applications for degree awarding examination shall be confirmed, the contents and presentability of the thesis shall be examined and instruction shall be provided for their modification and then the judgement if the examination for the doctoral thesis shall be worth starting.

Additionally, the presentation for the doctoral thesis shall be held in public before and after the preliminary examination committee. The time for the presentation for the doctoral thesis shall be approximately one hour. The applicants shall present the contents of the thesis for approximately 40 minutes and the questions and answers shall be subsequently conducted for approximately 20 minutes.

The examination committee for the doctoral thesis shall be established, which shall be composed of three or more faculty members including one or more members of Degree Program Faculty Meeting, other than the chief examiner as the thesis supervisor of the course.

The examination committee for the doctoral thesis can include the faculty members of other graduate schools or the research institutes outside the university.

## Curriculum Policy

This Degree Program shall constitute the curriculum to have the students understand and expect the mechanism of generation of regional- and global-scale issues, intend to present their solutions and cultivate an ability to collect/analyze information, communication skills, practical ability and an ability to suggest based on bird's eye view for the specialization and issues of sciences, engineering, agricultural science and social science etc. In detail, in order to acquire comprehensive/analysis ability, ability to correspond to issues and ability to suggest required for diploma, especially the ability to solve the problems including water resources/aquatic environment, living resources/biodiversity, urban problems, disaster/disaster prevention etc., emphasis shall be put on fostering the ability necessary for contribution of problem solving based on the foundation and specialty of sciences, engineering, agricultural science and social science, with the ability to see from a higher perspective.

Curriculum organization policy	Advanced knowledge and international competency/innovativeness for the research for the doctoral thesis relating to environmental sciences shall be tested/evaluated in the course of the educational program and by these, the students can get credits. Through these, specialization, macroscopic visibility and analysis ability etc. necessary for internationally competent doctors (environmental sciences) shall be secured. Additionally, through course work and internship classes, an ability to analyze problems, practical ability and communication skills etc. shall be cultivated. Through the course work and internship classes such as Forum on Environmental Studies and Practicums etc., practical abilities such as management ability, communication skills, expressiveness, an ability to judge and suggest etc. shall be cultivated. By implementation of research for the doctoral thesis through Exercise of Environmental Studies etc., an ability to integrally promote research etc., such as an ability for area surveys, an ability for analytics/analysis of information, an ability for lab work, group ability and modelling ability etc. shall be cultivated.
Learning methods • Processes	<ul style="list-style-type: none"> <li>•Exercise of Environmental Studies I, II (1 credit for each) shall be the compulsory courses and the courses relating to course work (Forum on Environmental Studies I, II, and Environmental Science Practicum I, II) shall be the selective compulsory courses.</li> <li>•Upon commencing the 1<sup>st</sup> year, for all the students the advisory committee (research supervision team) composed of the team of a chief supervisor and several sub supervisors shall be established to organize validity and problems of research plan for each student. Additionally, instruction such as confirmation etc. of such as the courses registered, and the credits acquired and evaluation for progress in the research for the doctoral thesis shall be implemented. The advisory committee shall participate in other master' programs, as necessary.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>•The advisory committee shall periodically evaluate the students and examine their research progress.</li> <li>•In Forum on Environmental Studies I, II, the students shall be comprehensively evaluated through discussion and presentation etc.</li> <li>•Regarding the progress in the doctoral thesis, setting of the issues and research plan shall be evaluated in Exercise of Environmental Studies I, and the interim progress shall be done in Exercise of Environmental Studies II.</li> </ul>

## Admission Policy

- Desired students
- The person with knowledge and quality regarded as distinguished in the master's degree level in any area of sciences, engineering, agricultural science and social science.
  - The person with intellectual curiosity, ability for logical thinking and ability to summarize necessary to work on interdisciplinary research for environmental sciences and who have acquired an ability to autonomously conduct learning related to their relevant surrounding areas.
  - The person with a sense of mission, a sense of justice and a sense of ethics necessary to play an active role in international society as a global leader and who has acquired motivation to pioneer new academic areas and issues by himself/herself, a positive attitude in order to realize them, an ability to continue them patiently and a flexible and strong spirit.
  - The person with a motivation to write presentation in international academic conferences, to submit papers and to write the doctoral thesis in English.
  - The person with a motivation to work on the issues on a global scale related to sustainable development objectives as a global leader and contribute to preparation/implementation of policies in English and future vision.
  - In addition to the above-mentioned, as for the working professionals, practical skills and management ability acquired by business experience so far shall also be evaluated.

- Selection policy
- The following three items shall be evaluated and comprehensively judged.
- If the student can explain the research contents in the master's course, and (or) the research and practical achievements conducted so far etc. accurately and logically.
  - If capable of accurately and logically explain the contents of research in the master's course and/or research/business performance etc. so far.
  - Judged by presentation regarding knowledge/qualities, abilities and motivation indicated in the above-mentioned "Desired Student" .

## Doctoral Program in Life Science Innovation (Food Innovation)

Name of the degree to be conferred	Doctor of Philosophy in Food Innovation
Educational purpose	The Doctoral Program in Life Science Innovation cultivates highly specialized professionals or researchers who possess the world's top-class advanced specialized research ability with cross-disciplinary mind from a higher perspective, open up a new strides in life science research using bioresources, produce internationally highly appraised research outcomes, and are globally active in the areas of research and development of innovative pharmaceutical products and functional foods and in the areas of their maintenance and administration.
Vision of human resources development	In the doctoral program, the following persons shall be trained: "the researchers and highly specialized professionals who can find a new value in food and create highly internationally competent research outcomes" by focusing on any of a series of abilities relating to industry creation based on functionality of food acquired in the master's degree course and then studying it.
Diploma Policy	
The degree of Doctor of Philosophy in Food Innovation is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Innovation ability: Ability to make innovations in the areas of life science.	① If there is the awareness and motivation to create new knowledge and pass it along to the society in the areas of life science ② If the research techniques and reasoning skills for the theory and practice that lead to innovation creation in the areas of life science were gained ③ If issues that have not been revealed in Food Innovation Science were identified and solved ④ If there is the motivation to identify and solve cross-disciplinary research tasks in cooperation with researchers from different areas and not just one's own area



7. Specialized knowledge: Leading-edge knowledge in the area of expertise	① If leading-edge specialized knowledge about food innovation science was gained ② If a research plan for solving unsolved issues was drawn up based on gained specialized knowledge
8. Advanced practical English: Command of English sufficient for performing various activities involving research in the international society	① If the presentation ability that can impact the international society when research outcomes are reported or shared in English was gained ② If the English proficiency and knowledge to debate equally with researchers active in the front lines were gained

#### Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree dissertation must be the results of work in which the diploma applicant took the initiative and must contain research findings that are unprecedented and internationally highly appraised and that contribute to make strides in the areas of food innovation science. The degree dissertation must be written in English logically and scientifically and must be constructed in an appropriate format as a degree dissertation.

【Review board members】 A dissertation is reviewed by an exclusive board formed by one chief reviewer and three or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the three or more sub-reviewers, two or more faculty members qualified to supervise the research in the Program must be included. The four or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the four or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain his or her degree thesis content and then questioned by exclusive board members about what he or she has explained. The presentation of dissertation content and a question-and-answer session, which are part of the final exam, are publicly administered. During this examination, in which the applicant is required to make a presentation about his or her degree dissertation in English logically and scientifically, the applicant is evaluated to see if he or she can convince the reviewers sufficiently by answering the reviewers' questions with insight and by using the advanced specialized knowledge of the areas of food innovation science and including the latest research trends.

#### Curriculum Policy

Students are engaged in the research activities for identifying and solving unsolved issues for making innovations in the realms of Food innovation area. The curriculum includes internship subjects to support students in making innovations, for which they need to have the high awareness and motivation to work on research tasks in very different and/or cross-disciplinary areas in cooperation with researchers in different areas not just one's own area of expertise. In addition, to gain the cross-disciplinary way of thinking with the big picture in mind and cultivate the world's top-class advanced specialized research ability, the curriculum also organizes seminars taught by researchers who are active in the front lines and belong to overseas research institutes.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Curriculum of food innovation area shall be composed of Major Subjects, basic courses common to six program areas of this Degree Program (Disease mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics and Biomolecular Engineering) and Graduate General Education Courses. In Major Subjects, students are supervised for Food Innovation research.</li> <li>• Competence of knowledge creation is gained through doctoral dissertation creation, etc.</li> <li>• Management competence is gained through "Doctoral Competency Development", etc.</li> <li>• Communication competence is gained with "Practices in Life Science Innovation", etc.</li> <li>• Leadership competence is gained through "Doctoral Research in Life Science Innovation".</li> <li>• Competence in Internationality is gained through "Doctor's Life Science Innovation Seminar", etc.</li> <li>• Innovation ability is gained through General Foundation Subjects, Major Subjects, etc.</li> <li>• Specialized knowledge is gained through "Doctoral Research in Life Science Innovation", etc.</li> <li>• Advanced practical English is gained through "Doctor's Life Science Innovation Seminar", etc.</li> </ul>
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Learning methods • Processes	<ul style="list-style-type: none"> <li>• With the understanding of the latest research trends in Food Innovation, students identify issues that have not been revealed and draw up and carry out an appropriate research plan for solving them. Further, through critical debates with supervisory faculty members, students develop the plan into a research that leads to produce life science innovations.</li> <li>• Obtained research findings are presented in academic journals, etc. With this, students improve their English proficiency, and in the process, gain reasoning skills.</li> <li>• With General Foundation Subjects and Graduate General Education Courses, students learn the latest research trends in the areas of life science and also improve English presentation ability.</li> <li>• Through experience to create new knowledge in cooperation with the out-of-area researchers in conducting internship, the research ability shall be improved.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the initial evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for doctoral dissertation creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• One year before the expected completion of the Program, interim evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Five months before the expected completion of the Program, the final evaluation (Achievement evaluation III) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered five months before the expected completion of the Program, the preliminary review for the doctoral dissertation is conducted by the chief reviewer and three sub-reviewers.</li> <li>• At the final exam which is administered three months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and three sub-reviewers based on the presentation and question-and-answer session for the doctoral dissertation content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who have the sufficient qualities to gain the basic research abilities that are expected to make innovations in the areas of Food innovation area, the specialized knowledge necessary to achieve it, and good command of English serving for various research activities in the international society.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess master's degree level specialized knowledge (excellence in the current academic performance), and the ability to explain concretely in English about research backgrounds, research plans and about passing along research findings to the society.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for carrying out research activities in the Doctoral Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation and basic research abilities necessary for making innovations in the areas of Food innovation area and the ability to explain and debate in English.</li> </ul>

## Doctoral Program in Life Science Innovation (Environmental Management)

Name of the degree to be conferred	Doctor of Philosophy in Environmental Management
Educational purpose	The Doctoral Program in Life Science Innovation cultivates highly specialized professionals or researchers who possess the world's top-class advanced specialized research ability with cross-disciplinary mind from a higher perspective, open up a new strides in life science research using bioresources, produce internationally highly appraised research outcomes, and are globally active in the areas of research and development of innovative pharmaceutical products and functional foods and in the areas of their maintenance and administration.
Vision of human resources development	In the doctoral program, the following persons shall be trained: the researchers and highly specialized professionals who can create highly internationally competent research outcomes by focusing on the specific topic among the relationships between survival/growth of life and environmental conditions learned from a higher perspective in the master's degree course and improving an ability for problem-solving.
Diploma Policy	
The degree of Doctor of Philosophy in Environmental Management is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Innovation ability: Ability to make innovations in the areas of life science.	① If there is the awareness and motivation to create new knowledge and pass it along to the society in the areas of life science ② If the research techniques and reasoning skills for the theory and practice that lead to innovation creation in the areas of life science were gained ③ If issues that have not been revealed in Environmental Control Science were identified and solved ④ If there is the motivation to identify and solve cross-disciplinary research tasks in cooperation with researchers from different areas and not just one's own area

7. Specialized knowledge: Leading-edge knowledge in the area of expertise	① If leading-edge specialized knowledge about Environmental Control Studies was gained ② If a research plan for solving unsolved issues was drawn up based on gained specialized knowledge
8. Advanced practical English: Command of English sufficient for performing various activities involving research in the international society	① If the presentation ability that can impact the international society when research outcomes are reported or shared in English was gained ② If the English proficiency and knowledge to debate equally with researchers active in the front lines were gained

#### Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree dissertation must be the results of work in which the diploma applicant took the initiative and must contain research findings that are unprecedented and internationally highly appraised and that contribute to make strides in the areas of Environmental control field. The degree dissertation must be written in English logically and scientifically and must be constructed in an appropriate format as a degree dissertation.

【Review board members】 A dissertation is reviewed by an exclusive board formed by one chief reviewer and three or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the three or more sub-reviewers, two or more faculty members qualified to supervise the research in the Program must be included. The four or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the four or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain his or her degree thesis content and then questioned by exclusive board members about what he or she has explained. The presentation of dissertation content and a question-and-answer session, which are part of the final exam, are publicly administered. During this examination, in which the applicant is required to make a presentation about his or her degree dissertation in English logically and scientifically, the applicant is evaluated to see if he or she can convince the reviewers sufficiently by answering the reviewers' questions with insight and by using the advanced specialized knowledge of the areas of Environmental control field and including the latest research trends.

#### Curriculum Policy

Students are engaged in the research activities for identifying and solving unsolved issues for making innovations in the realms of Environmental control area. The curriculum includes internship subjects to support students in making innovations, for which they need to have the high awareness and motivation to work on research tasks in very different and/or cross-disciplinary areas in cooperation with researchers in different areas not just one's own area of expertise. In addition, to gain the cross-disciplinary way of thinking with the big picture in mind and cultivate the world's top-class advanced specialized research ability, the curriculum also organizes seminars taught by researchers who are active in the front lines and belong to overseas research institutes.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Curriculum of environmental management area shall be composed of Major Subjects, basic courses common to six program areas of this Degree Program (Disease mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics and Biomolecular Engineering) and Graduate General Education Courses. In Major Subjects, students are supervised for Environmental control research.</li> <li>• Competence of knowledge creation is gained through doctoral dissertation creation, etc.</li> <li>• Management competence is gained through "Doctoral Competency Development", etc.</li> <li>• Communication competence is gained with "Practices in Life Science Innovation", etc.</li> <li>• Leadership competence is gained through "Doctoral Research in Life Science Innovation".</li> <li>• Competence in Internationality is gained through "Doctor's Life Science Innovation Seminar", etc.</li> <li>• Innovation ability is gained through General Foundation Subjects, s Major Subjects, etc.</li> <li>• Specialized knowledge is gained through "Doctoral Research in Life Science Innovation", etc.</li> <li>• Advanced practical English is gained through "Doctor's Life Science Innovation Seminar", etc.</li> </ul>
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Learning methods · Processes	<ul style="list-style-type: none"> <li>• With the understanding of the latest research trends in Environmental control, students identify issues that have not been revealed and draw up and carry out an appropriate research plan for solving them. Further, through critical debates with supervisory faculty members, students develop the plan into a research that leads to produce life science innovations.</li> <li>• Obtained research findings are presented in academic journals, etc. With this, students improve their English proficiency, and in the process, gain reasoning skills.</li> <li>• With General Foundation Subjects and Graduate General Education Courses, students learn the latest research trends in the areas of life science and also improve English presentation ability.</li> <li>• Through internships, you will hone your research skills through the experience of collaborating with researchers outside the field to create new knowledge.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the initial evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for doctoral dissertation creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• One year before the expected completion of the Program, interim evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Five months before the expected completion of the Program, the final evaluation (Achievement evaluation III) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered five months before the expected completion of the Program, the preliminary review for the doctoral dissertation is conducted by the chief reviewer and three sub-reviewers.</li> <li>• At the final exam which is administered three months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and three sub-reviewers based on the presentation and question-and-answer session for the doctoral dissertation content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who have the sufficient qualities to gain the basic research abilities that are expected to make innovations in the areas of Environmental control area, the specialized knowledge necessary to achieve it, and good command of English serving for various research activities in the international society.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess master's degree level specialized knowledge (excellence in the current academic performance), and the ability to explain concretely in English about research backgrounds, research plans and about passing along research findings to the society.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for carrying out research activities in the Doctoral Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation and basic research abilities necessary for making innovations in the areas of Environmental control area and the ability to explain and debate in English.</li> </ul>



## Doctoral Program in Life Science Innovation (Biomolecular Engineering)

Name of the degree to be conferred	Doctor of Philosophy in Bioengineering]
Educational purpose	Highly specialized professionals or researchers who acquire cross-sectional and bird's eye view of life science, acquire world-class advanced specialized research capabilities, use all bioresources and globally play an active role in the areas of R&D of innovative functional materials that open up new developments in life science research.
Vision of human resources development	Researchers and highly specialized professionals who can create highly international competent research outcomes such as functional materials that use biomolecules by utilizing a broad knowledge relating to biomolecules and their application development and distinguished ability to set/solve issues.
Diploma Policy	
The degree of Doctor of Philosophy in Bioengineering is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Innovation ability: Ability to make innovations in the areas of life science.	① If there is the awareness and motivation to create new knowledge and pass it along to the society in the areas of life science ② If the research techniques and reasoning skills for the theory and practice that lead to innovation creation in the areas of life science were gained ③ If issues that have not been revealed in bioengineering were identified and solved ④ If there is the motivation to identify and solve cross-disciplinary research tasks in cooperation with researchers from different areas and not just one's own area
7. Specialized knowledge: Leading-edge knowledge in the area of expertise	① If leading-edge specialized knowledge about bioengineering was gained ② If a research plan for solving unsolved issues was drawn up based on gained specialized knowledge



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| 8. Advanced practical English: Command of English sufficient for performing various activities involving research in the international society | ① If the presentation ability that can impact the international society when research outcomes are reported or shared in English was gained<br>② If the English proficiency and knowledge to debate equally with researchers active in the front lines were gained |
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#### Dissertation evaluation criteria

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【Level standards required for the degree thesis】 The degree dissertation must be the results of work in which the diploma applicant took the initiative and must contain research findings that are unprecedented and internationally highly appraised and that contribute to make strides in the areas of Biomolecular materials field. The degree dissertation must be written in English logically and scientifically and must be constructed in an appropriate format as a degree dissertation.

【Review board members】 A dissertation is reviewed by an exclusive board formed by one chief reviewer and three or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the three or more sub-reviewers, two or more faculty members qualified to supervise the research in the Program must be included. The four or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the four or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain his or her degree thesis content and then questioned by exclusive board members about what he or she has explained. The presentation of dissertation content and a question-and-answer session, which are part of the final exam, are publicly administered. During this examination, in which the applicant is required to make a presentation about his or her degree dissertation in English logically and scientifically, the applicant is evaluated to see if he or she can convince the reviewers sufficiently by answering the reviewers' questions with insight and by using the advanced specialized knowledge of the areas of Biomolecular materials field and including the latest research trends.

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#### Curriculum Policy

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Students are engaged in the research activities for identifying and solving unsolved issues for making innovations in the realms of Biomolecular materials area. The curriculum includes internship subjects to support students in making innovations, for which they need to have the high awareness and motivation to work on research tasks in very different and/or cross-disciplinary areas in cooperation with researchers in different areas not just one's own area of expertise. In addition, to gain the cross-disciplinary way of thinking with the big picture in mind and cultivate the world's top-class advanced specialized research ability, the curriculum also organizes seminars taught by researchers who are active in the front lines and belong to overseas research institutes.

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| Curriculum organization policy | <ul style="list-style-type: none"> <li>• Curriculum of biomolecular engineering area shall be composed of Major Subjects, basic courses common to six program areas of this Degree Program (Disease mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics and Biomolecular Engineering) and Graduate General Education Courses. In Major Subjects, students are supervised for Biomolecular materials research.</li> <li>• Competence of knowledge creation is gained through doctoral dissertation creation, etc.</li> <li>• Management competence is gained through “Doctoral Competency Development”, etc.</li> <li>• Communication competence is gained with “Practices in Life Science Innovation”, etc.</li> <li>• Leadership competence is gained through “Doctoral Research in Life Science Innovation”.</li> <li>• Competence in Internationality is gained through “Doctor's Life Science Innovation Seminar”, etc.</li> <li>• Innovation ability is gained through General Foundation Subjects, Major Subjects, etc.</li> <li>• Specialized knowledge is gained through “Doctoral Research in Life Science Innovation”, etc.</li> <li>• Advanced practical English is gained through “Doctor's Life Science Innovation Seminar”, etc.</li> </ul> |
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Learning methods · Processes	<ul style="list-style-type: none"> <li>• With the understanding of the latest research trends in Biomolecular materials, students identify issues that have not been revealed and draw up and carry out an appropriate research plan for solving them. Further, through critical debates with supervisory faculty members, students develop the plan into a research that leads to produce life science innovations.</li> <li>• Obtained research findings are presented in academic journals, etc. With this, students improve their English proficiency, and in the process, gain reasoning skills.</li> <li>• With General Foundation Subjects and Graduate General Education Courses, students learn the latest research trends in the areas of life science and also improve English presentation ability.</li> <li>• Through internships, you will hone your research skills through the experience of collaborating with researchers outside the field to create new knowledge.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the initial evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for doctoral dissertation creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• One year before the expected completion of the Program, interim evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Five months before the expected completion of the Program, the final evaluation (Achievement evaluation III) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered five months before the expected completion of the Program, the preliminary review for the doctoral dissertation is conducted by the chief reviewer and three sub-reviewers.</li> <li>• At the final exam which is administered three months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and three sub-reviewers based on the presentation and question-and-answer session for the dissertation content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who have the sufficient qualities to gain the basic research abilities that are expected to make innovations in the areas of Biomolecular materials area, the specialized knowledge necessary to achieve it, and good command of English serving for various research activities in the international society.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess master's degree level specialized knowledge (excellence in the current academic performance), and the ability to explain concretely in English about research backgrounds, research plans and about passing along research findings to the society.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for carrying out research activities in the Doctoral Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation and basic research abilities necessary for making innovations in the areas of Biomolecular materials area and the ability to explain and debate in English.</li> </ul>

## Joint Master's Degree Program in Sustainability and Environmental Sciences

Name of the degree to be conferred	Master of Sustainability and Environmental Sciences
Educational purpose	The program guides students to become a professional who can contribute to solving problems and realizing sustainable society in tropical Asia in the point of the global issues such as water resources/aquatic environment, flood, and ecosystem in terms of specialized and comprehensive insights of sciences, agricultural sciences, engineering, and social science.
Vision of human resources development	<ul style="list-style-type: none"> <li>•The professional who can contribute to solving local and global-scale issues relating to water resources/aquatic environment, bioresources/biodiversity and etc. and urban problems etc. in tropical Asia/monsoon regions.</li> <li>•The professional who understands various issues in developing countries and is equipped with the knowledge and skills necessary to create sustainable and resilient future local communities.</li> <li>•The professional who has a specialized and panoramic view, can seriously work on challenging issues and take measures to properly solve the problems.</li> </ul>

### Diploma Policy

The degree of Master of Sustainability and Environmental Sciences is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Literacy: an ability for panoramic thinking and logical constitution.	<ul style="list-style-type: none"> <li>① Having an ability for comprehensive thinking, which is necessary to position specialized knowledge into environmental issues.</li> <li>② Having an ability for the logical constitution to analyze and explain environmental issues in a specialized/comprehensive way.</li> </ul>
2. Ability to coordinate: communication skills/ability for negotiation/ability for adjustment.	<ul style="list-style-type: none"> <li>① Having communication skills/ability for negotiation with various stakeholders.</li> <li>② Having an ability for adjustment and arrangement in filed surveys</li> <li>③ Having an ability to organize meetings with relevant institutions/stakeholders.</li> </ul>
3. Practical skills: executive ability/expressiveness ① if having an executive ability to organize/set the problems and establish the process to solve such problems.	<ul style="list-style-type: none"> <li>① Having an executive ability to organize/set the problems and establish the process to solve such problems.</li> <li>② Having expressiveness such as presentation and self-appeal.</li> </ul>
4. Fundamental knowledge: basic knowledge necessary for understanding/analysis of various issues in tropical Asia regions.	<ul style="list-style-type: none"> <li>① Capable of understanding/analyzing various issues based on basic knowledge/skills of sciences, agricultural science, engineering and social science.</li> <li>② Having acquired an ability to explain identification of problem logically.</li> </ul>
5. Technological capacity: technological capacity necessary to solve various issues in tropical Asia regions.	<ul style="list-style-type: none"> <li>① Having acquired knowledge relating to skills for problem-solving technics based on understanding/analysis of environmental issues.</li> <li>② Having acquired an ability to estimate various issues that can be expected while application of technologies in a panoramic way.</li> </ul>
6. Ability for social implementation: an ability to perform social implementation that requires academic knowledge/skills necessary to solve various issues in tropical Asia regions	<ul style="list-style-type: none"> <li>① Having acquired an ability to suggest a system that can be socially implemented based on understanding various issues.</li> <li>② Having acquired an ability to point out the problems of existing relevant technologies/policies and provide new suggestions.</li> </ul>

## Dissertation evaluation criteria

The requirements shall be as follows: completing interdisciplinary curriculum in the program, acquiring the prescribed credits and carrying out research for master's thesis. The dissertation should be passed in the thesis defense.

(Examination system for dissertation)

The Thesis Examination Committee shall be composed of three members, including a supervisor as a main examiner from a home university and two sub-examiners from a home university and a host university respectively. However, an examiner can be selected as a committee member from other program members as necessary.

The Thesis Examination Committee shall evaluate a Master's thesis and submit an evaluation report to the Chair.  
(Evaluation items for dissertation)

1. If setting of problems in the thesis is clearly indicated, and the issues are recognized as being able to contribute to solving environmental issues directly or indirectly.
2. If the conventional research outcomes (literature and materials) are specified and properly evaluated and validity of the procedures in exploring issues in developing points of argument is appropriately presented upon achieving research objective.
3. If the research methods (theory, experiment method/materials, survey method etc.) are recognized as appropriate upon achieving research objectives.
4. If the thesis from problem setting to conclusion is narrated demonstratively and logically, new knowledge is presented, and in the conclusion, academic contribution of the conclusion drawn is confirmed in terms of sustainability and environmental sciences.
5. If the dissertation is presentable as a thesis for master's degree.

(Examination standard for dissertation)

The dissertation that satisfies all the following items above 1 to 5 shall be a pass as the thesis for master's degree after going through final examination.

## Curriculum Policy

This course shall aim to understand the mechanism of environmental issues and find their solutions and construct a curriculum to develop communication skills and practical ability in addition to basic knowledge of natural science and social sciences and humanities. In detail, in order to acquire knowledge/ability required for degree awarding, skills/a judgment ability/practical ability abilities that are required for highly specialized professionals solve local-scale/global-scale issues such as climate changes, water resources, bioresources, urban problems, and disasters, etc., especially in tropical Asia/monsoon regions. This course aim allow students that can contribute to solving problems with specialized and panoramic insights of sciences, agricultural science, engineering and social science etc. The curriculum shall be designed for focusing on basic of sciences, agricultural science, engineering and social science. Students are able to obtain the and an ability to understand/recognize problems, an ability to solve problems and capable of suggestion/practical ability etc. For this purpose, the curriculum shall be organized according to the following policies.

Curriculum  
organization policy

- ① The program allow students to have a broad scientific knowledge and problem-solution skills for the environmental issues in tropical Asia/monsoon regions. Students develop an internationally competent research skill and deeper specialized knowledge as a researcher and a manager to apply other regions through the compulsory and elective courses.
- ② To confirm/evaluate the students' learning/research activities progress, share awareness between chief supervisor and sub supervisors and confirm instruction policy etc., actualize cooperative instruction system and cooperative education system, and confirm standardization in evaluating learning/research outcomes etc., The seminar course of Joint Seminar with MJIIT shall be established as jointly established courses.
- ③ To conduct a highly novel and internationally competent research, the classes for master thesis research shall be established.

	<p>④ To understand various issues in the developing countries and develop the skills necessary to implement surveys and experiments in broad areas of environmental sciences in other countries with different cultures, overseas internship shall be performed. In this internship, students at University of Tsukuba learn an interactive experiment from field surveys and field work in Malaysia. Students of MJIIT shall perform the same learning in Japan. Upon implementation, considering that this internship is performed as a practical activity, careful attention shall be given in order to perform the internship overseas safely and efficiently through close cooperation between Japanese faculty members of MJIIT and the ones dispatched from the University of Tsukuba and the ones in this Degree Course. Additionally, for the students of MJIIT as well, through close cooperation between the program members of this Degree Course and the ones of MJIIT, internship shall be safely and efficiently performed.</p> <p>⑤ To develop an ability to write a thesis and a knowledge, a seminar course shall be established. To complete a thesis and obtain a presentation skill, a special research course shall be established.</p> <p>⑥ To develop a research management skill that is essential for a scientific technology in the 21<sup>st</sup> century and a career development, and English writing skill to announce research outcomes to the world and to build legal, social, and ethical knowledge relating to environmental issues and for further achievement for students' goal with communication skill to debate with others who have different opinions, general courses are established.</p>
Learning methods • Processes	<p>In this course, the students whose home university is University of Tsukuba or Malaysia-Japan International Institute of Technology (MJIIT) shall spend their 1<sup>st</sup> term in their home university and then perform educational research by staying in the host university. At each university, the supervisors shall be appointed. In their home universities, through completing a course work and compulsory classes for one term, students shall understand the principle and approach of this course and prepare for learning/research activities in overseas partner graduate school through course work and lab work while learning basic knowledge and skills necessary for learning/research.</p> <p>In overseas partner graduate school, the students shall take classes etc., conduct field surveys to carry out research for master's thesis and carry out research/learning and receive evaluation under sub supervisor of the overseas partner graduate school. The program allows smooth communication among supervisors through joint seminars. The instruction shall be provided for the students according to their proficiency. Students exchange the information closely with the supervisors of their home university during their stay in the partner university. The program takes great care of students.</p>
Evaluation of learning outcomes	<p>In Joint Seminar which the faculty members and students at both universities conduct (targeting the 1<sup>st</sup> year: for the students from University of Tsukuba, joint seminar shall be performed one year after enrollment), the students shall give a presentation about the contents of their research and learning, and their achievement shall be evaluated, including questions and answers based on their presentation. In the last term, under instruction of the main supervisor in their home university, the students shall analyze the research data etc. obtained in the partner's university and be engaged in thesis writing and prepare for the final examination for their master thesis research. The final examination shall be performed by the thesis examination committee composed of both faculty members of home university and host university, making use of video conference system.</p>
Admission Policy	
Desired students	<p>The program seeks students that, with a strong interest in issues to be solved in tropical Asia and a background in natural science or social science and a cooperative spirit, are strongly determined to innovate and contribute to the sustainable society by solving global issues with environmental scientific approaches. As for selecting of students, the applicants shall be examined by two screenings: the first one is by each university and the second one is by both universities jointly, leading to final decision of candidates.</p>

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## Selection policy

By comprehensively evaluating the application forms (reason for application, research plan, transcript/diploma of home institution ( bachelor's degree), degree certificate, English proficiency certification etc.) and the results of the interview test (based on the application forms, the interview test shall be performed. which shall be performed in the university which the applicants apply for and the partner university shall participate in such interview test by video conference system), the acceptance of the applicants shall be judged. Additionally, since the program has international characteristics, a certain level of English proficiency shall be required. Furthermore, the following three precautions for applicants shall be informed:

- Having sufficient communication skills to take curriculum in English provided by this course.
- Being in the situations where applicants can complete the curriculum, for one year in a university where the applicants are dispatched and for one year in the one they are accepted during enrollment period.
- Capable of paying travel expenses, lodging expenses and living expenses that are necessary for learning in the University of Tsukuba and the University of Technology Malaysia at the applicants' own expense (including acquisition of scholarship).



# Graduate School of Comprehensive Human Sciences

## Degree Programs in Comprehensive Human Sciences

Master's Program in Education

Subprogram in School Education for the Next Generation

Subprogram in School Education for the Next Generation

Subprogram in Education Sciences

Master's Program in Psychology

Subprogram in General Psychology

Subprogram in Clinical Psychology

Master's Program in Disability Sciences

Master's Program in Counseling

Master's Program in Rehabilitation Science

Master's Program in Neuroscience

Master's Program in Nursing Science

Master's Program in Medical Sciences

Master's Program in Public Health

Master's Program in Physical Education, Health and Sport Sciences

Master's Program in Sport and Olympic Studies

Master's Program in Sport and Wellness Promotion

Master's Program in Art

Master's Program in Design

Master's Program in Heritage Studies

Master's Program in Informatics

Master's Program in Life Science Innovation (Disease Mechanism)

Master's Program in Life Science Innovation (Drug Discovery)

Doctoral Program in Education

Doctoral Program in Psychology

Subprogram in General Psychology

Subprogram in Clinical Psychology

Doctoral Program in Disability Sciences

Doctoral Program in Counseling Science

Doctoral Program in Rehabilitation Science

Doctoral Program in Neuroscience

Doctoral Program in Medical Sciences

Doctoral Program in Nursing Science

Doctoral Program in Human Care Science

Doctoral Program in Public Health

Doctoral Program in Sports Medicine

Doctoral Program in Physical Education, Health and Sport Sciences

Doctoral Program in Coaching Science

Doctoral Program in Sport and Wellness Promotion

Doctoral Program in Art

Doctoral Program in Design

Doctoral Program in Heritage Studies

Doctoral Program in Informatics

Doctoral Program in Human Biology

Doctoral Program in Life Science Innovation (Disease Mechanism)

Doctoral Program in Life Science Innovation (Drug Discovery)

## Joint Master's Program in International Development and Peace through Sport

## Joint Doctoral Program in Advanced Physical Education and Sports for Higher Education

## International Joint Degree Master's Program in Agro-Biomedical Science in Food and Health

### Educational purpose of Graduate School of Comprehensive Human Sciences

This course shall aim at training the researchers and faculty members who can plan/execute research based on advanced and global view in their own areas of study through rich and advance educational research from basic and applications relating to human mind and body and various activities, have a broad knowledge relating to human beings and plan/execute distinguished academic research by which advanced fusion of different areas can be sought on the back of distinguished interdisciplinary academic research and international and interdisciplinary educational research environment, and highly specialized professionals who can satisfy social needs by understanding human beings from multifaceted view and researching/designing flexible and proper aids/support.

### Competences specified by the Graduate School of Comprehensive Human Sciences

Master's Program	1. Research ability	Basic knowledge and ability to set research tasks and carry out a research plan in the areas of comprehensive human sciences
	2. Specialized knowledge	Advanced specialized knowledge and command of the areas of comprehensive human sciences
	3. Ethical view	Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of comprehensive human sciences
Doctoral Program	1. Research ability	Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of comprehensive human sciences
	2. Specialized knowledge	Leading-edge and advanced specialized knowledge and command of the areas of comprehensive human sciences
	3. Ethical view	Ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of comprehensive human sciences and deep ethical knowledge about the specific area of expertise

## Dissertation Evaluation Criteria Common to the Graduate School of Comprehensive Human Sciences

At the Graduate School of Comprehensive Human Sciences, which conducts interdisciplinary and comprehensive studies on various global issues surrounding human beings, master's and doctor's degrees are admitted only when all of the following evaluation criteria are satisfied.

### Master's programs

#### <Dissertation evaluation criteria>

1. Significance of the research theme: The research theme is urgent and involved in the body, mind, and various activities of humans, and the solution of the theme has academic significance and is to contribute to society.
2. Understanding of preceding studies: Based on objective evaluations of existing theories and studies related to the own research theme, theoretical contributions the research can add and practical significance the research can achieve through the creation, construction and application of the new knowledge are well discussed.
3. Understanding and proper use of research methods: The candidate understands the methods to explore the research theme (e.g., argumentation, designing of experiments, surveys, etc., and data analysis) and has acquired the skills to properly use the methods.
4. Relevance of presentation and interpretation of research results: The candidate can be recognized to have the skills to present research results in an academic manner and the capability to interpret the results deductively or inductively.
5. Research discussion: Upon objective assessment of the novelty and limitations of the study, recommendations that will contribute to society, or discussion meaningful to future studies, are made.
6. Format of the thesis: The thesis is written in accurate language, while figures, tables, and references are properly shown, and the list of references is correctively prepared to meet the standard appropriate for an academic paper.

#### <Criteria for the Final Examination>

1. The candidate has basic knowledge and skills to set a research theme and implement the research design.
2. The candidate has specialized knowledge and competence in his/her primary field of study.
3. The candidate has ethical values and ethical knowledge appropriate for a high-level professional.

### Doctoral programs, doctoral programs in medical sciences, three-year doctoral programs

#### <Dissertation evaluation criteria>

1. Significance of the research theme: The research theme addresses a global-scale issue related to the body, mind, and various activities of humans, and its solution will have novel academic significance and will be of sufficient importance for the development of inclusive society.
2. Understanding of preceding studies: Based on elaborate, rigorous and objective evaluations of existing theories and studies related to the research theme, theoretical contributions the research can make and practical significance the research can achieve through the creation, construction and application of the new knowledge are profoundly discussed.
3. Understanding and proper use of research methods: The candidate precisely understands the advanced methods to explore the research theme (e.g., argumentation, designing of experiments, surveys, etc., and data analysis) and has acquired a sufficient level of skills to properly use the methods.
4. Relevance of presentation and interpretation of research results: The candidate can be recognized to have a sufficient level of skills needed to present research results in an academic manner and the capability to interpret the results in an interdisciplinary manner, whether deductively or inductively.
5. Research discussion: Upon objective assessment of the limitation of the study, recommendations that are to contribute to the inclusive society to come are made, and discussion meaningful to future studies are fully given.

6. Originality: The study can be recognized to be, in comparison to existing studies, novel with sufficiently interdisciplinary and comprehensive significances.
7. Format of the thesis: The thesis is written in accurate language, while figures, tables, and references are properly shown and the list of references is correctively prepared, to sufficiently meet the standard appropriate for a doctoral thesis.

<Criteria for the Final Examination>

1. An advanced research theme was identified from the variety of global-scale issues surrounding human beings, and the research design was implemented independently.
2. The candidate has a high level of specialized knowledge and capabilities appropriate for human studies.
3. The candidate has high ethical values and ethical knowledge appropriate for a high-level professional and researchers.

## Degree Programs in Comprehensive Human Sciences

### Educational purpose

This course shall aim at training the researchers and faculty members who can plan/execute research based on advanced and global view in their own areas of study through rich and advance educational research from basic and applications relating to human mind and body and various activities, have a broad knowledge relating to human beings and plan/execute distinguished academic research by which advanced fusion of different areas can be sought on the back of distinguished interdisciplinary academic research and international and interdisciplinary educational research environment, and highly specialized professionals who can satisfy social needs by understanding human beings from multifaceted view and researching/designing flexible and proper aids/support.

	Competences specified by the Degree Programs	Evaluation perspectives
Master's Program	1. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of comprehensive human sciences	① If relevant research tasks from the review of previous research in the area of expertise involved in the human mind and body and various activities are set ② If modern research tasks involved in the human mind and body and various activities are pointed out from a global perspective
	2. Specialized knowledge: Advanced specialized knowledge and command of the areas of comprehensive human sciences	① If specialized knowledge to explore research subjects and fields in an appropriate manner is acquired ② If there is motivation to actively absorb and use knowledge and skills necessary to research of the relevant area
	3. Ethical view: Ethical view and ethical knowledge appropriate for persons with basic research ability or highly specialized professionals in the areas of comprehensive human sciences	① If there is a choice of appropriate methods of research for research tasks targeting humans ② If research devoting enough attention to the ethical aspect on human mind and body and various activities is carried out
Doctoral Program	1. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of comprehensive human sciences	① If essential research tasks that contribute to the future on the basis of previous research in the area of expertise involved in the human mind and body and various activities are set ② If original findings using reasonable methods of research in the solution of leading-edge set tasks are created
	2. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the areas of comprehensive human sciences	① If the ability to put leading-edge and advanced specialized knowledge in the relevant area into practice is acquired ② If original tasks based on up-to-date specialized knowledge in the relevant area were newly discovered

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Doctoral Program	3. Ethical view: Ethical view and ethical knowledge appropriate for researchers or highly specialized professionals in the areas of comprehensive human sciences and deep ethical knowledge about the specific area of expertise	① If knowledge to keep intellectual property and information involved in research secure is sufficient ② If knowledge to keep ethical view, intellectual property and information vital to the relevant area secure is explained
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## Master's Program in Education

Name of the degree to be conferred	Master of Arts in Education
Educational purpose	Highly specialized professionals shall be trained who can systematically understand the significance and role of education for human activities and social development, sensitively grasp globally spread current educational issue, have fundamental research ability to analyze them by making use of academic approaches in various areas of study of education and have a research ability that enables leading problem-solving with distinguished specialized knowledge in various areas of education.
Vision of human resources development	<p>Based on the above-mentioned educational purpose, the three subprograms shall be established corresponding to the occasions where the persons are expected to play an active role. By training the persons mentioned as follows, this program shall aim at achieving the above-mentioned educational purpose in general.</p> <p>① Subprogram in International Education</p> <p>• Highly specialized professionals with research ability for leading educational activities and the development of human resources in educational administrative agencies schools, social education /lifelong learning institutions NPO and other education-related organizations etc. in and outside Japan.</p> <p>② Subprogram in School Education for the Next Generation</p> <p>• Highly specialized professionals who are engaged in analyzing effects of educational policies, creating policies and supporting educational development etc. by making use of academic approaches of education sciences in administrative institutions/international institutions, and schools in and outside Japan and have a research ability to scheme and design school education in next generation.</p> <p>③ Subprogram in Basic Education Sciences</p> <p>• The researchers who are engaged in education/research in various basic/fundamental areas of education sciences in universities/research institutions in and outside Japan.</p>

### Diploma Policy

The degree of Master of Arts in Education is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	<p>① Can you apply knowledge gained through research and other activities in society?</p> <p>② Can you identify new problems, even in other fields of expertise, based on broad knowledge?</p>
2. Management competence: Ability to appropriately address challenges from broad standpoints	<p>① Can you take on major tasks with systematic planning?</p> <p>② Can you understand and solve problems from multiple perspectives?</p>
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	<p>① Are you capable of efficient communication for research purposes?</p> <p>② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?</p>
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	<p>① Do you have experience cooperatively and actively working on challenges as part of a team?</p> <p>② Have you helped promote projects and activities other than your own research?</p>

5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Ability to discover educational issues: an ability to grasp current global issues based on systematical understanding of substantial meaning of education.	① If capable of setting research tasks appropriately based on the preceding studies. ② If capable of indicating current educational issues from a global view.
7. Ability to explore the contents of education: an ability to explore the contents of education in a wide variety of educational sites.	① If capable of exploring the contents of education in a proper method in concrete educational sites including educational administrative institutions and schools etc. ② If capable of explaining educational values of the contents of education explored.
8. Ability for pedagogical analysis: a basic research ability to analyze by making use of academic approaches in various areas of education.	① If capable of selecting appropriate research method for research tasks ② If capable of proceeding research by sufficiently paying attention to ethical aspects relating to education sciences.
9. Ability to solve educational issues: a basic research ability to analyze by making use of academic approaches in various areas of education.	① If capable of solving the issues by making use of appropriate and distinguished specialized knowledge assuming concrete educational sites such as educational administrative institutions and schools etc. ② If capable of understanding expertise necessary to take the initiatives in solving educational issues by a group.

#### Dissertation evaluation criteria

The thesis that satisfies all the following evaluation items shall be a pass as the thesis for master's degree after going through the final examination with presence in person.

1. The significance and positioning of the said research in the area of education science shall be clearly described.
2. The research tasks shall be appropriately set.
3. The research method shall be reasonably selected.
4. Relevant cited documents and references are specified based on the preceding research.
5. The research thesis shall summarize the studies based on firm ground.

Additionally, the thesis examination committee established in order to implement examination of the thesis for master's degree shall be composed of one program leader, three sub leaders and some members designated by the program leader of this Degree Program. Furthermore, the supervisors of this Degree Program approved by the thesis examination committee shall serve as the chief examiner (1 person) and sub examiner (two or more persons).

#### Curriculum Policy

In Master's Program in Education, the curriculum shall be organized by classifying the classes broadly into three categories of [General Foundation Subjects], [Foundation Subjects for Major] and [Major Subjects] in order that students can acquire both basic knowledge and specialized one of various areas in educational science necessary for the researchers of educational science, and generic/specialized competences through developing educational research activities. Additionally, by setting the courses necessary for students who have Class 1 Teaching License to acquire Special Certificate in a wide range, this course shall enable them to obtain the qualifications as highly specialized professionals relating to education.

Curriculum organization policy	The courses to be the foundation of this Degree Program shall be established as [General Foundation Subjects] by which students aim to acquire basic knowledge necessary for the researchers of educational science and generic/specialized competences, which is determined as compulsory courses.
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Additionally, the courses by which students aim at acquiring specialized knowledge in various areas of education, and the method to find and resolve research tasks shall be established as [Foundation Subjects for Major] , which shall be determined as selective courses based on the course model set by satisfying the requirements of the three subprograms (Subprogram in International Education, Subprogram in School Education for the Next Generation, Subprogram in Basic Education Sciences) established according to the characteristics of human resources to be developed. In this case, the reason the registered courses are indicated as the course model not by expressively classifying the courses for each subprogram is to enable the students to register courses according to interdisciplinary research areas beyond the bounds of conventional graduate course and division etc. and additionally, to aim at developing human resources who can respond to complex and multilayered contemporary educational issues.

In addition, through learning the courses established in other degree programs (within the degree program, other degree programs), more interdisciplinary learning shall be achieved.

The courses by which the students aim at acquiring generic/specialized competences through actual development of the research relating to various areas of educational science and complete their master's thesis as a result shall be established as [Major Subjects] , which shall be determined as selective courses based on the subprograms and course model.

#### Learning methods • Processes

All the students of this Degree Program shall register and acquire [General Foundation Subjects] . [Foundation Subjects for Major] and [Major Subjects] shall be taken and completed according to the subprograms and more detailed course model. Other degree programs established in other subprograms and Graduate School of Comprehensive Human Sciences as a matter of fact, and the courses established in the degree program set in other graduate school shall also be registered in order to enable the students to obtain deep understanding of interdisciplinary characteristics of educational science.

#### Evaluation of learning outcomes

In each class, the supervisor shall carry out strict educational evaluation. From the end of the 1<sup>st</sup> year to the spring module in the 2<sup>nd</sup> year, the concept presentation of master's thesis shall be performed and the assessment for the research direction and learning results of the 1<sup>st</sup> year shall be carried out. In the 2<sup>nd</sup> year, interim instruction sessions for master's degree thesis shall be performed twice and the progress status of the research shall be assessed. At the end of the 2<sup>nd</sup> year, By evaluating the master's degree thesis evaluated in each class and submitted in January and comprehensively evaluating the results of final examination (oral examination) relating to learning results of research activities, acquisition status of nine competences described in diploma policy shall be judged.

### Admission Policy

#### Desired students

In Master's Program in Education the desired students shall be as follows: in addition to the human resources aiming to become researchers who are engaged in education/research in various areas of educational science in universities/research institutions in and outside Japan, highly specialized professionals with research ability who are engaged in analyzing effects of educational policies, creating policies and supporting educational development etc. by making use of academic approaches of education sciences in administrative institutions/ international institutions in and outside Japan and the human resources who aim to become highly specialized professionals with research ability for leading educational activities and the development of human resources in educational administrative agencies schools, social education /lifelong learning institutions NPO and other education-related organizations etc. in and outside Japan. The following applicants may also enter this program: the person who have experienced the research of education science in department of education etc. and have acquired qualifications/abilities of teachers as professionals as a matter of course, the ones who have interests in relationship between high specialization cultivated in department of science and social sciences and humanities etc. and education as basic activities of human beings and the ones who have interests in educational activities in broad human communities not limited by schools.

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Selection policy

The entrance examination shall basically consist of specialty examination, foreign language examination of non-specialty (English), and oral examination. By arranging the examination in English for special selection for working individuals and foreign students, this Degree Program shall support various forms of learning. For applicants, the results of each examination subject shall be comprehensively evaluated, and their aptitude shall be examined.

## Master's Program in Psychology

Name of the degree to be conferred	Master of Arts in Psychology
Educational purpose	Psychology is crucial for understanding human beings and the academic area which explores what mind is and clarifies functions of mind and which aims at clarifying the process by which human beings incorporate information from outside world, understand it and finally take proper actions back through brain function to support it. In this course the following persons shall be trained: the human resources who have various and close relationship with adjacent areas including social science area and multidisciplinary which can develop as interdisciplinary research after acquiring such knowledge/metrologies/skills/sense of values of the entire area of psychology and then can contribute to society as experts of human research, that is, the persons who have a solid foundation, a broad view and an awareness of issues as the researcher in psychology area.
Vision of human resources development	The desired students shall have an ability to contribute to society as a professional researcher by obtaining a fixed perspective in the area of psychology, based on an ability to understand human beings objectively as a whole, an ability to understand mental diversity and universality and an ability to understand interaction between human beings and environments. In addition to educational purpose to become a professional researcher in in the area of psychology; in clinical psychology subprogram, a human resource who directly contributes to social activities broadly as a highly specialized professional by meteorology and knowledge/skills of psychology obtained while having broad perspective in the entire area of psychology. On the other hand, in clinical psychology subprogram, a human resource who can make best use of extensive experience of clinical practice as a highly specialized professional by combining an ability to creatively develop clinical psychology comprehensively from various perspectives with skills for practical application.
Diploma Policy	
The degree of Master of Arts in Psychology is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?

6. Psychological problem finding and ability to understand human beings: an ability to understand diversity of mind and behavior and connection with human beings-environment based on knowledge of psychology and methodology.	① If capable of understanding (or intending to understand) diversity of human mind and behavior from knowledge and methodology of psychology. ② If capable of understanding (or intending to understand) relationship between human beings and environment from knowledge and methodology of psychology.
7. Ability for psychological problem-solving: an ability to find/understand/solve problems based on knowledge, methodology and ethics of psychology.	① If capable of finding and understanding (or intending to find and understand) the problems of human mind and behavior based on knowledge and methodology of psychology. ② If capable of solving (or intending to solve) the problems of human mind and behavior with psychological specialization and high ethical view.
8. Practical ability for psychological clinic: an ability to put psychological clinical support into practice based on knowledge and methodology of psychology, and skills for psychological clinic.	If capable of putting psychological clinic support for the problems of human mind and behavior with psychological specialization and high ethical view.
9. Psychological information dissemination ability: an ability to disseminate psychological knowledge/methods/results and contribute to society with high ethical view.	① If capable of disseminate (or intending to disseminate) knowledge/methodology/results of psychology with high ethical view. ② If capable of contributing to (or intending to contribute to ) society with knowledge and methodology of psychology and high ethical view.
10. Communication skills among multiple areas: an ability to be able to discuss/cooperate with experts of other areas/other professional occupations by executing specialization of psychology.	① If capable of discussing/cooperating (or intending to discuss/cooperate) with experts of other areas/other professional occupations and initiative as the experts of psychology. ② If capable of discussing/cooperating (or intending to discuss/cooperate) with experts of other areas/other professional occupations and initiative by making use of psychological specialization.

#### Dissertation evaluation criteria

After satisfying the requirements prescribed in School Regulations of Tsukuba University, the doctoral thesis shall be approved as valid regarding the following evaluation items and judged as a pass in final examination.

(Evaluation items)

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in psychology is clearly described.
2. Right amount of original research outcomes that contribute to development of psychological area is contained as master's thesis.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as master's thesis of the said area.

(Review system)

The examination committee for master's thesis established in order to implement examination of master's thesis etc. shall be composed of one chief examiner and two or more sub examiners. In the sub examiners, two or more faculty members of the degree program shall be included. If necessary, it shall be possible to add the persons fit for the examiners outside the degree program approved by Degree Program Faculty Meeting.



## Curriculum Policy

In order to explore what mind is and clarify functions of mind as being crucial for understanding human beings, Master's Program in Psychology shall enable students to acquire necessary knowledge/ methodologies/skills/sense of values and develop an ability for problem-solving which can contribute to society as experts of human sciences while having simultaneously various and close relationships with adjacent areas and multidisciplinary which can develop as interdisciplinary research.

### Curriculum organization policy

Master's Program in Psychology shall provide curriculum which enables students to independently perform their research in order to create the thesis to complete master's degree by setting the general psychology subprogram and the clinical psychology subprogram and then establishing degree program General Foundation Subjects, common subjects in general psychology and clinical psychology and Major Subjects. By learning research in psychology through "Methodologies on Psychology" and "Current Issues in Psychology", psychological problem finding and ability to understand human beings shall be acquired. In Major Subjects of each ("Lecture on Educational Psychology" and other lectures as major subjects, and Research Seminar in Psychology) and Basic Research in Psychology, an ability for psychological problem solving shall be cultivated. Such specialized competences shall be the basis to acquire information dissemination ability and communication skills among multiple areas. By these as the basis of generic knowledge/ abilities, Competence of knowledge application, Management competence, communication skills and group ability shall be cultivated.

In clinical psychology subprograms, in addition to major subjects, practical ability for clinical psychology shall be acquired by various kinds of practical training. Especially, lectures/seminars/practical training shall also be incorporated in order to acquire qualifications of licensed psychologist and clinical psychology practitioner etc. Additionally, through "Psychology Internship" and "Career Development in Psychology", psychological information dissemination ability and communication skills among multiple areas shall be acquired.

Through a part of "Methodologies on Psychology" and "English Practicum in Psychology Research" etc. Competence in Internationality shall be acquired.

In addition to the above-mentioned, through completion of Inter-disciplinary Foundation Courses and Graduate General Education Courses, Management competence, Communication competence, Teamwork competence and Competence in Internationality shall be acquired.

### Learning methods • Processes

Degree program General Foundation Subjects shall strengthen specialized basic. Simultaneously, guidance subjects for research to create master's thesis as the culmination of Degree Program shall also be included. Additionally, various subjects shall be established for career development. Major subjects of each subprogram shall provide specialized knowledge and its practical forum for learning in individual area of expertise.

Especially, in psychology basic subjects, it is recommended to take the subjects established in Degree Program in Neuroscience as one of psychology Major Subjects t as well.

Additionally, in seminars of Major Subjects, by carrying out practical research activities which deal with concrete research, basic abilities etc. to implement research shall be developed.

In clinical psychology subprogram, practices for practical ability for clinical psychology shall be established.

After completing this subprogram, the students shall be provided eligibility to apply for Certified Public Psychologist and clinical psychology practitioner.

In both subprograms, in addition to completion of these subjects, an ability to implement research and communication skills shall be acquired through "participation in instruction sessions for master's degree thesis "three times in the 1<sup>st</sup> year for preparing for the research for the thesis to complete master's degree and creation of master's thesis in the 2<sup>nd</sup> year of standard registration shall be advanced. Regarding the research for the thesis to complete master's degree, through the system by which multiple faculty members provide instruction for research by the team composed of supervisor and sub supervisor(s).

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• In each class, the supervisor shall carry out strict educational evaluation.</li> <li>• At the end of the 1<sup>st</sup> year, the students shall be required for submission of research progress report, by which annual research activities shall be evaluated.</li> <li>• In the 2<sup>nd</sup> year, by implementing the concept presentation of master's thesis (1<sup>st</sup> instruction session) in May and interim presentation of master's thesis (2<sup>nd</sup> instruction session) in October, interim evaluation shall be performed.</li> <li>• As the final evaluation, the thesis for master's degree submitted in January by three examiners shall be peer reviewed. In addition, oral examination shall be performed in the final presentation for master's thesis as well, and comprehensive evaluation as psychology research and evaluation regarding acquisition of various abilities necessary for degree completion shall be performed.</li> </ul>
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#### Admission Policy

Desired students	<p>In Master's Program in Psychology, the desired students shall actively learn meteorology and knowledge/skills of psychology and have ambitions to train the researchers who aim at psychology research further by advancing to the doctoral course. Additionally, this program shall recruit the persons who aim at becoming Certified Public Psychologists/ clinical psychology practitioners, and the experts engaged in Kansei engineering/human engineering/cognitive engineering, the experts who analyze social psychological situations such as social surveys and market surveys, the experts engaged in personnel management/ performance rating and highly specialized professionals who make use of specialized psychological research ability as the basis including officials etc. with specialization of psychology. Targeting the persons who are eager to study psychology to understand human beings and desiring the persons who independently study, this program can also accept the ones who hope to study and explore psychology in a specialized way.</p>
Selection policy	<p>The entrance examination shall consist of specialty examination, foreign language examination of non-specialty (English), and oral examination. The applicants shall be required to have acquired basic knowledge and basic skills to a certain degree and be equipped with basic ability to perform literature studies/empirical studies.</p>

## Master's Program in Disability Sciences

Name of the degree to be conferred	Master of Arts in Disability Sciences
Educational purpose	As the first stage in cultivating research professionals, this program trains researchers with basic research competency who can promote scientific and practical research of disability sciences, as well as highly skilled professionals and competent special needs educators who have a scientific foundation, appropriately demonstrate their skills in practice, and have the potential to become leaders in Japan and abroad.
Vision of human resources development	From a foundation of basic and practical knowledge and skills in disability sciences, graduates will be able to use the exploration of the nature of disabilities and their characteristics to contribute to the development and application of assistive technologies.

### Diploma Policy

The degree of Master of Arts in Disability Sciences is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Ability to plan and execute research: The basic knowledge and skills to plan and execute research relating to disability science	① Can the student develop a research plan for an important issue based on knowledge of disability sciences? ② Can the student present, modify as needed, and execute a research plan they developed?
7. Ability to understand disability: Extensive knowledge of disability sciences and the ability to apply it	① Can the student understand and describe knowledge and techniques related to disability sciences, as well as current conditions and challenges? ② Can the student identify and work to solve research questions related to disability sciences based on expert knowledge?
8. Ethical understanding and attitude: The ability to follow ethical procedures necessary for research and practice aiming to understand disabilities and resolve associated challenges	① Has the student taken and completed a course on ethics in disability sciences? ② Can the student understand the ethical perspectives and knowledge necessary for disability sciences research and execute such research?

## Dissertation evaluation criteria

- In the guidance of the master's thesis, the Research Guidance Committee consisting of 1 thesis advisor (chairman) and 2 assistant advisors (committee members) will provide guidance. The submitted thesis will be reviewed and evaluated by a Thesis Review Committee comprising 1 primary reviewer and 2 secondary reviewers.
- Evaluation of the master's thesis will be made comprehensively from the following perspectives, based on the peer review of the submitted thesis, the content of the final presentation, and the results of the final examination.
  1. The significance and position of the research in the field of disability sciences is clearly expressed based on an understanding of research and research trends in relevant fields both in Japan and internationally.
  2. The results of original research contributing to the development of the field of disability sciences are included in an amount appropriate for a master's thesis.
  3. The reliability of the research findings has been adequately verified based on sufficient knowledge of research integrity.
  4. The discussion of the research findings is valid, and the conclusion is based on objective evidence.
  5. The research background, objective, method, results, discussion, and conclusion are organized in a format appropriate for a master's thesis in this field.

## Curriculum Policy

In the Master's Program in Disability Sciences, students acquire basic and practical knowledge and skills in disability sciences, cultivate the ability to explore and identify the nature of disabilities and disability characteristics, and attain basic research competency. From this foundation of basic research competency, students further acquire the ability to contribute to the development and application of assistive technologies. To achieve this, students are provided with education and research guidance aiming to cultivate research skills, expert knowledge, and an ethical perspective in a core specialization, along with basic training in related fields, a broad perspective, and general knowledge and abilities that support activities in a variety of social settings.

### Curriculum organization policy

- Foundational courses are core courses that form a foundation for disability sciences and provide students with basic research skills in disability sciences leading to three career tracks. Major courses (general) provide students with the knowledge and skills necessary for highly skilled professionals, including an ability to understand disabilities and disability characteristics, as well as principles, systems, and support methods for disability-related education and welfare. Major courses are designed to provide students with in-depth knowledge and skills in specific specializations from the many perspectives on individual needs arising from principles, systems, and disability characteristics according to their academic needs and interests and in light of the three career tracks.
- Through Disability Sciences Surveys and Experiments Lab I and II, students will acquire the ability to plan and execute research and ethical understanding and attitude.
- Through other foundational courses such as Disability Sciences Research Methods, students will acquire the ability to plan and execute research, as well as the ability to bridge the gap between research and practice.
- Through major courses (general), students will acquire the ability to understand disabilities and develop and execute services.
- Through Special Topics courses, a subset of major courses, students will acquire the ability to plan and execute research and the ability to understand disabilities in each specialized area of disability sciences or in areas that apply across different disabilities (e.g., principles, systems).
- Through Practicum courses, a subset of major courses, students will acquire the ability to develop and execute services, the ability to bridge the gap between research and practice, and ethical understanding and attitude in each specialized area of disability sciences, or for areas that apply across different disabilities (e.g., principles, systems).

Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students will acquire a total of 30 credits: 5 credits from compulsory foundational courses, 7 credits from major courses in their specialization (Special Topics I and II, Practicum I, II, and III in the student's area of specialization and generally taught by their thesis advisor), and at least 18 credits from other courses (general graduate courses, elective foundational courses, major courses [general], or Special Topics I and II/Practicum I and II in an area outside the student's specialization).</li> <li>• Research guidance for the master's thesis will be provided in an organized and systematic manner through the foundational courses Disability Sciences Surveys and Experiments Lab I and II (compulsory) in the first year, the foundational courses Disability Sciences Research Methods I, II, and III (compulsory) in the first and second years, and the major course Practicum III (elective compulsory) in the student's area of specialization in the second year.</li> <li>• Students aiming to become disability sciences researchers will take courses with an emphasis on learning basic research competency (in foundational courses) and specialized knowledge and skills in both specific disability and cross-disability areas (in major courses) as the first step in their training as a researcher.</li> <li>• Students aiming to become educators in special needs schools or classrooms will take courses with an emphasis on learning basic research competency (in foundational courses) and acquiring knowledge and skills related to both the principles and systems of special needs education and the physiology, psychology, curriculum, and instruction of children with disabilities (in major courses [general]) as highly skilled professionals in the field of special needs education.</li> <li>• Students aiming to work in rehabilitation institutions or welfare facilities for people with disabilities will take courses with an emphasis on learning basic research competency (in foundational courses) and acquiring knowledge and skills related to disability development, clinical practice, and support (in major courses [general]) as highly skilled professionals in the field of support for people with disabilities.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• As the process of guidance for master's thesis, by going through the concept instructed by supervisor, confirming progress status of plan and implementation of research in design presentation and interim presentation in the entire degree program, instruction shall be provided aiming at completion/submission of master's thesis. The thesis shall be evaluated by the contents of presentation in each presentation, advice after presentation and response thereto. In the final presentation, an ability to disseminate contents/results of research shall be evaluated. Such evaluation shall be reflected in the classes which link to presentation of master's thesis. The five grades form A+, A, B, C, D shall be given.</li> <li>• Regarding lectures, students shall be evaluated by formative assessments such as short reports/reaction papers/mini tests etc. and summative assessments such as final examinations/reports. In principle, such evaluation shall be comprehensively marked out of 100 points.</li> <li>• Regarding seminars/practicums, students shall be evaluated by their activities in each class and by summative assessments of term papers on 5 scales of A+, A, B, C, D.</li> </ul>
Admission Policy	
Desired students	<p>We are seeking individuals who aspire to contribute to disability-related areas such as life-long education, welfare support, administration, and international cooperation and are eager to play an active role in the field of disability sciences as researchers or highly skilled professionals. We are accepting a wide range of applicants, including students who learned the basics of disability sciences at the undergraduate level, those who come from another field and seek to specialize in disability sciences, educators or working professionals, individuals with medical qualifications, and international students.</p>

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## Selection policy

Three types of entrance examinations are offered: general, recommendation, and special selections (working professionals or one year course for inservice teachers). The program can also be completed through our extended program system.

- The general and recommendation entrance examination evaluates based on the score of the English external examination, expertise in disability science, and the logic and preparatory situation to conceive the research plan.
- For the special selection for working professionals option, the English external examination will be waived, evaluates based on the examination of application documents, expertise in disability science, and the logic and preparatory situation to conceive the research plan.



## Master's Program in Counseling

Name of the degree to be conferred	Master of Science in Counseling
Educational purpose	This program focuses on the field of counseling psychology, and provides comprehensive and fundamental education in counseling to in-service professionals and psychological clinicians. It aims to foster advanced professionals and university teachers who will acquire the results and methodologies of international and interdisciplinary research, and contribute to society through scientific, practical, and developmental solutions to various problems in the workplace and society, in cooperation with other professions.
Vision of human resources development	By focusing on the specific field of counseling within psychology, students will acquire comprehensive knowledge and techniques related to the field, and have the ability to plan and conduct practice and research with ethical considerations, while building on their own rich, professional experience.

### Diploma Policy

The degree of Master of Science in Counseling is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research skills: basic knowledge and ability to set research questions and carry out research plans in the counseling field.	① Being able to formulate research questions in the field of counseling ② Acquire basic knowledge and skills to carry out a research plan in the field of counseling
7. Expertise: High level of expertise and operational skills in the counseling field	① Advanced expertise in the field of counseling. ② Acquired advanced operational skills in the field of counseling.
8. Ethics: A sense of ethics and ethical knowledge appropriate for personnel with basic research skills in the counseling field or advanced professionals.	① Possess basic research skills in the field of counseling ② Have acquired ethics appropriate for advanced professionals.

## Dissertation evaluation criteria

1. Based on an understanding of domestic and international research trends and previous research in related fields, the significance and positioning of the relevant research in the field of counseling should be clearly stated.
2. The master's thesis should contain an appropriate amount of original research results that contribute to the development of the field of counseling in Japan and abroad.
3. The reliability of the research results has been sufficiently verified based on sufficient knowledge of research fairness.
4. The discussion of the research results is reasonable, and the conclusions are based on objective evidence.
5. The background, purpose, methods, results, discussion, and conclusions of the research should be summarized in a format appropriate for a master's thesis in the field.

Standard to be met by the thesis: Both the Chair and Co-Chairs must be able to judge that the thesis meets 1-5 above.

Review committee structure: 1 The Chair, 2 Co-Chairs

Examination method: Master's thesis, thesis presentation, and oral examination are judged by the Chair and Co-Chairs based on the academic paper standards.

Examination items: Master's thesis, thesis presentation, oral examination

## Curriculum Policy

Organize coursework that enables working graduate students to acquire knowledge in counseling-related fields, acquire research literacy, and write a master's thesis.

Curriculum organization policy	Education and research guidance will be provided to cultivate a broad basic background in the field of counseling, a broad perspective, and general knowledge and abilities to support activities in various fields of society, as well as research skills, specialized knowledge, and ethical views in developmental psychology, social psychology, clinical psychology, industrial/organizational psychology, educational psychology, and criminal psychology.
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Specifically, students acquire research literacy skills, problem finding skills, and research planning skills in the required subjects, and research execution and presentation skills in the coursework related to the three research presentations per year. In addition, students learn about various theories of mental and physical health, psychosocial problems in the human development process and their support, various problems in modern society and issues in organizations, assessment and support planning in psychology and education, psychological research methods, and statistical analysis through discussions and exercises in elective specialized subjects. discussion and seminars.

It is further recommended that students take one credit from the common specialized foundation courses of the Faculty of Arts and Sciences to contribute to the cultivation of basic knowledge, broad perspectives, and general knowledge and abilities in related fields, based on their major.

Learning methods • Processes	<p>(Advisory System)</p> <ul style="list-style-type: none"><li>• For practical research and presentation skills related to counseling, lectures and practical training on various research methods are given from the first year. Individual and group research guidance and presentations are also given.</li><li>• In terms of ethical considerations, workshops and explanatory meetings related to ethical review are held in the first year, and individual guidance is provided mainly by the Ethics Committee and supervisors.</li><li>• As for cooperation and collaboration with other fields and disciplines, since students and graduates have various fields of specialization and places of employment, information exchange and research collaboration among students and graduates are actively conducted from the time they are in school.</li><li>• For practical research skills from an international perspective, students will be involved in activities at overseas academic conferences and exchanges with overseas universities that are highly regarded for their practice and research in the counseling field.</li></ul>
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	<p>(Learning Support)</p> <ul style="list-style-type: none"> <li>•All faculty members, mainly homeroom teachers, will provide a system for individual counseling on matters specific to working graduate students (balancing work and study, family situations such as childcare and nursing care). Establish an environment for data analysis rooms and graduate student laboratories so that working graduate students can come directly from their workplaces to the university for study and research activities. Secure a certain number of hours of intensive lectures on Saturdays and Sundays in relation to the workplace.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>•In the first year, a pre-design presentation on the research theme is given, and the content and progress of the master's thesis are evaluated.</li> <li>•In the second year, students are evaluated on their conceptual presentation, interim presentation, final presentation, and oral examination. The master's thesis will be comprehensively evaluated in terms of originality of the research, overall structure of the thesis, appropriateness of the analysis, validity of the discussion and conclusions, and consistency of logic, based on peer review by three faculty members, the final presentation, and the oral examination.</li> </ul>
Admission Policy	
Desired students	<p>We are looking for in-service professionals, psychological clinical specialists, and others who have the will and motivation to contribute to society by acquiring a broad perspective, deepening and developing expertise, and acquiring research techniques in counseling-related fields, and by solving various problems in the workplace and society in a scientific, practical, and developmental manner, based on their own abundant professional experience.</p>
Selection policy	<p>The entrance examination is conducted in two stages. In the first stage, the results of the document review and the paper examination are comprehensively judged, and in the second stage, an oral examination is conducted for those who pass the first stage of examination. Successful applicants will be determined based on the results of the oral examination and the results of the first stage examination.</p>

## Master's Program in Rehabilitation Science

Name of the degree to be conferred	Master of Science in Rehabilitation
Educational purpose	In this course, highly specialized professionals shall be trained, who provide comprehensive and fundamental education for the researchers and specialized professionals relating to rehabilitation, acquire international/interdisciplinary research outcomes and methodology in collaboration with other occupations, scientifically/practically/developmentally solve various problems in their workplace and society and contribute to society.
Vision of human resources development	In this Degree Program, the human resources shall be trained who have comprehensive and inclusive ability necessary for correspondence and development in a broad view relating regarding various problems which working individuals in-service encounter at their workplaces and whose solutions are promptly required. In comprehensive and inclusive rehabilitation area, highly specialized professionals and faculty members with high practical R&D ability relating to scientific solution of frontline problems shall be especially trained.

### Diploma Policy

The degree of Master of Science in Rehabilitation is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of rehabilitation.	① If capable of establishing appropriate research plan relating to rehabilitation and properly conveying such plan to others. ② If capable of completing appropriate master's degree relating to rehabilitation and properly make presentation of its results.
7. Specialized knowledge: Advanced specialized knowledge and command of the areas of rehabilitation.	If capable of acquiring highly specialized knowledge relating to rehabilitation and an ability to independently disseminating it.

8. Ethical view: ethical view and ethical knowledge appropriate for the human resources or highly specialized professionals who have basic research ability in the area of rehabilitation.	If having acquired basic research ability relating to rehabilitation and ethical view and ethical knowledge.
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#### Dissertation evaluation criteria

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in Rehabilitation science field is clearly described.
2. Right amount of original research outcomes that contribute to development in and outside Japan of Rehabilitation science field is contained as master's thesis.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for research outcomes is valid and conclusion is based on objective evidence.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as master's thesis of Rehabilitation science field.

Level standards required for the degree thesis: Both chief supervisor and sub supervisor(s) can judge that master's thesis has satisfied the above-mentioned 1 to 5.

Review board members: One chief supervisor, two sub supervisors.

Examination method: both the chief supervisor and sub supervisors shall comprehensively judge master's thesis, thesis presentation and oral examination.

Examination items: master's thesis, thesis presentation and oral examination.

#### Curriculum Policy

The education/research supervision shall be provided to cultivate a basic knowledge, a wide view and generic competences to support the active role in social diversified settings to develop highly specialized professionals based on interdisciplinary rehabilitation and teachers for higher education of training schools for rehabilitation professionals etc. including research ability, specialized knowledge and ethical view that cover four areas of rehabilitation (medical rehabilitation, rehabilitation for special needs education, social rehabilitation and vocational rehabilitation).

Curriculum organization policy	Centering on students' majors, in order to contribute to cultivating basic knowledge and wide view, generic competences in relevant areas, it shall be recommended to take one credit from Inter-disciplinary Foundation Courses. Specific subjects to be registered and system to deploy sub supervisor(s) shall be determined based on research plans career plans of individual students etc. Upon determination, the followings shall be kept in mind: acquiring an ability to find problems and to solve them and research literacy such as a planning ability relating to clinical study, to create master's thesis, to enrich course work in order to acquire skills for presentation and debate communication and enhance qualifications as researchers in clinical study. Additionally, core curriculum shall be organized in order to develop competent human resources with advanced comprehensive perspective by organizing curriculum not confined to ordinary area of expertise.
Learning methods • Processes	(Advisory System) • In order to acquire practical research ability/presentation ability relating to rehabilitation, lectures/seminars relating to various research methods shall be provided and individual and group research guidance and presentation shall be performed from the 1 <sup>st</sup> year. • Regarding ethical consideration, training sessions and information sessions relating to ethical review shall be held in the 1 <sup>st</sup> year and individual instruction shall be provided mainly by ethic committee members and supervisors. • Regarding cooperation/collaboration with other areas/other areas, as the area of expertise/employment of the students/graduates are diversified, information exchange and research cooperation shall be frequently conducted with the students/graduates while studying in this course.

	<ul style="list-style-type: none"> <li>•For cultivating practical research ability with an international perspective, the lectures of “Rehabilitation English” shall be provided. Besides, opportunities shall be provided for students to interact with reputable overseas universities for practices/research in rehabilitation area.</li> </ul> <p>(Learning Support)</p> <p>The system by which individual consultation shall be individually provided regarding the contents of consultation specific to working graduate students (balancing between work and study, family situations such as parenting/elderly care etc.) by all the faculty members centering on their supervisors. In order that working graduate students can perform learning/research activities by directly coming from their workplace to the university, circumstances etc. of data processing room and research laboratory for graduate students shall be organized. Intensive courses on weekends shall be secured for a certain time due to relationship with their workplace etc.</p>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>•Pre-design presentation shall be performed relating to students’ research taskss in the 1<sup>st</sup> year and their progress status of master’s thesis shall be evaluated.</li> <li>•The students’ master thesis shall be evaluated by conception presentation, interim presentation, final presentation and oral examination in the 2<sup>nd</sup> year. As the evaluation points of their master’s thesis, structure of the thesis as a whole, validity of consideration/ conclusion and consistency of logics etc. shall be comprehensively evaluated by peer-review by three faculty members, final presentation and oral examination.</li> </ul>
Admission Policy	
Desired students	<p>Education shall be provided for the researchers and highly specialized professionals who have an interest in comprehensive/inclusive rehabilitation for the lifespan including elderly people/persons with disabilities/children and perspective of interdisciplinary research. In addition to the above-mentioned, education shall be provided by putting emphasis on training of the researchers and highly specialized professionals relating to rehabilitation who can cross-sectionally analyze/research the four areas of rehabilitation (medical rehabilitation, rehabilitation for special needs education, social rehabilitation and vocational rehabilitation).</p>
Selection policy	<p>Entrance examination shall be implemented for the working individuals who have practical experience of one or more years in rehabilitation-related area after graduating from universities. After releasing admission information and implementing open campus/ admission guidance (April and May), acceptance of applicants shall be closed in the middle of July. The entrance examination shall be implemented at the end of August and the results shall be announced for the entrants of April in the following year in October. In the entrance examination, students shall be provided evaluation by document screening, essay examination to examine basic knowledge and interview test concerning reason for application.</p>



## Master's Program in Neuroscience

Name of the degree to be conferred	Master of Neuroscience
Educational purpose	To address various specific issues in society, such as aging, educational challenges, and mental health problems, this program aims to cultivate individuals who can apply their expertise in neuroscience, including knowledge of the human mind, behavior, brain functions, and related abnormalities, to contribute to solving problems, while demonstrating exceptional teamwork and communication skills. Additionally, this program seeks to develop individuals with advanced expertise and techniques grounded in a broad and profound academic foundation in neuroscience, equipping them with the international competitiveness required to pursue research training in the doctoral program.
Vision of human resources development	<ul style="list-style-type: none"> <li>• Individuals who, with an interdisciplinary understanding of neuroscience, possess the ability to address complex issues related to the mind and behavior that modern society faces, in various settings both domestically and internationally.</li> <li>• Individuals who can advance both basic and applied research by leveraging their academic foundation in normal and disordered brain functions.</li> </ul>
Diploma Policy	
The degree of Master of Neuroscience is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Basic knowledge/specialized knowledge: acquisition of fundamental knowledge that covers neuroscience in general essential to discover issues, draft plans and carry out research in the area of neuroscience	① If capable of discovering new issues based on fundamental knowledge in the area of neuroscience. ② If capable of drafting research plan to solve discovered issues.

7. Practical research skill: Ability to carry out basic research (experiment/survey) subject to human and animals in neuroscience area based on ethics of researchers	If capable of solving research tasks by making use of basic research method in the area of neuroscience.
8. Research information collection/ability to disseminate findings: communication skills including proficiency in foreign languages, sufficient for implementation for understanding of papers in the area of neuroscience, information collection and dissemination of findings	① If capable of understanding papers in the area of neuroscience published in international magazines and acquiring the latest findings therefrom. ② If capable of accurately and clearly explaining the contents of research and specialized knowledge, based on logical thinking, not only to those for different areas and not just one's own area.

#### Dissertation evaluation criteria

After satisfying the requirements prescribed in School Regulations of Tsukuba University, the doctoral thesis shall be approved as valid regarding the following evaluation items and judged as a pass in final examination.

(Evaluation items)

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in neuroscience is clearly described.
2. Right amount of original research outcomes that contribute to development of neuroscience is contained as master's thesis.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as master's thesis of neuroscience.

(System for examiner/examination method)

The examination committee for master's thesis shall be composed of three faculty members (the primary advisor is one of the research supervisors), a pass or a failure shall be judged by implementing oral examination relating to the master's thesis and its relevant areas as a final examination at the presence of all examiners.

#### Curriculum Policy

The curriculum shall aim at having students acquire basic knowledge that cover neuroscience in general, research method, ability to think logically, ability to plan and implement research, ability to discover/solve problems, ability to coordinate with/manage different areas, communication skills/cooperativeness and ability to debate in English in cross-disciplinary way.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• We offer the basic courses of "Introduction to Neuroscience" and "Neuroscience Laboratories" which consist of four sub-categories, i.e., "molecular/cellular", "systems", "behavior/cognitive" and "applied" neuroscience. With this course work the basis of all the areas of neuroscience can be systematically learned.</li> <li>• Through compulsory subjects of General Foundation Subjects ("Neuroscience Professional Career Development") and Foundation Subjects for Major ("Introduction to Neuroscience", "Research Proposal Writing in English"), basic research ability of neuroscience and scientific English communication skills shall be trained. Additionally, students shall be required to take Inter-disciplinary Foundation Courses and learn knowledge, way of thinking and approaches of neighboring areas.</li> <li>• In "Neuroscience Laboratories", students shall learn various research methods for neuroscience through hands-on practical training. In "English Journal Club", "Neuroscience Research Seminar", students shall independently learn a broad knowledge related to the trend of neuroscience research. Additionally, by establishing Translational Neuroscience Internship, opportunities shall be provided to experientially learn how the findings of basic research of neuroscience is applied to or utilized in the actual social spheres.</li> </ul>
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	<ul style="list-style-type: none"> <li>• By establishing four compulsory subjects as “Neuroscience Thesis Research” , and gradually providing instruction for the process from decision of theme for master’s thesis, research initiative presentation for master’s thesis, research qualification test for master’s thesis, final examination of master’ thesis, final public presentation of master’ thesis, to acquisition of master’s degree, quality of the master’s degree shall be assured.</li> </ul>
Learning methods • Processes	<p>Learning in the first year</p> <ul style="list-style-type: none"> <li>• Students shall take “Neuroscience Professional Career Development” and independently consider and establish leaning plan until acquisition of master’s degree and their career path after completion of master’s degree.</li> <li>• Students shall take “Research Ethics” and “ Inter-disciplinary Foundation Courses (subjects may be freely s)” and a broad education relating to ethical views as researcher and human science shall be acquired.</li> <li>• By completing all of “Introduction to Neuroscience A, B, C, D” (Principles of Neural Science, Fifth Edition 5<sup>th</sup> edition shall be planned for use as a textbook), basic knowledge shall be acquired relating to neuroscience at the levels of “molecular/cellular” , “systems” , “behavior/cognitive” and “applied”</li> <li>• Based on the lecture of Introduction to Neuroscience, one or more subjects from “Neuroscience Laboratories A, B, C, D” in any of the areas: “molecular/cellular” , “systems” , “behavior/cognitive” and “applied” , students shall practically learn basic research tasks and research method of each area.</li> <li>• By completing “Research Proposal Writing in English I” , and “English Journal Club I” , students shall independently learn communication skills in English, an ability to debate and an ability to read in English. Additionally, through research seminar by invited lecturers and informal discussion, students shall learn a fun of advanced research of a broad area of neuroscience.</li> <li>• In “Neuroscience Thesis Research I” , students shall search and learn the literature of previous research relating the theme of master’s thesis research.</li> <li>• In “Neuroscience Thesis Research II” , students shall advance research for master’s thesis by going through research initiative presentation for master’s thesis and advance preparations for research qualification test for master’s thesis in July in the second year.</li> <li>• According to students’ own career plan, by completing the subjects established by neuroscience master’s degree program such as “Research Proposal Writing in English II” , “English Journal Club 2” , “Neuroscience Advanced Research Seminar II” , “Translational Neuroscience Internship” etc., “ Inter-disciplinary Foundation Courses” and other master’s degree program, students shall acquire higher knowledge, research method, ability to logically think, English ability, and practical ability.</li> <li>• In “Neuroscience Thesis Research III” , students shall continue research for master’s thesis after passing research qualification test for master’s thesis. In “Neuroscience Thesis Research IV” , students shall advance preparation of master’s thesis and aim at passing final examination of master’ thesis.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The subjects other than “Neuroscience Thesis Research II to IV” shall be evaluated according to the evaluation method described in the syllabus.</li> <li>• “Neuroscience Thesis Research II to IV” shall be evaluated according to the following in addition to the scores by the academic advisor and the accreditation shall be conducted. <ol style="list-style-type: none"> <li>(1) “Neuroscience Thesis Research II” : initiative presentation for master’s thesis. Oral presentation regarding research tasks for master’s degree shall be performed in the presence of all the research supervisors.</li> <li>(2) “Neuroscience Thesis Research III” : research qualification test for master’s thesis.</li> <li>(3) “Neuroscience Thesis Research IV” : final examination for master’s thesis regarding master’s thesis submitted. Presentation and oral examination for research for master’s thesis shall be performed in the presence of all the research supervisors. Additionally, for the persons who pass the final examination, the final public presentation for master’s thesis shall be performed.</li> </ol> </li> </ul>

## Admission Policy

Desired students	The desired students shall have high interest in specialized research regarding comprehensive brain function and behavior, mind and mental disorder. It is desirable but not always essential that students have received undergraduate education, including neuroscience, psychology, disability science, biology and basic medicine.
Selection policy	The entrance examination shall be composed of written examination and oral examination, by which linguistic skill, knowledge of the area of expertise and motivation and qualification for learning shall be comprehensively evaluated.

## Master's Program in Nursing Science

Name of the degree to be conferred	Master of Science in Nursing
Educational purpose	As Japan has falling birthrates and an aging society, there is a greater variety of and increased demand for medical care due to long-term and complex health problems of the patients with multiple diseases and disabilities. This master's degree program shall train highly specialized professionals, including midwives, and serve as one stage to train researchers. With a broad and deep academic knowledge that can contribute to solving such issues based on scientific evidence in nursing science.
Vision of human resources development	The desired students shall explore nursing based on a firm ethical view and scientific evidence with interdisciplinary and international perspectives and have attitude to improve themselves as researchers. In addition, such students shall potentially become nurses with specialized knowledge/skills/practical ability as the basis of nursing research/practices and educators of nursing science to support education of nursing science.

### Diploma Policy

The degree of Master of Science in Nursing is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems based on broad knowledge, even in other fields of expertise?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on significant tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your field and other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of contributing to international society and participating in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Ability to explore based on scientific evidence: Ability to explore, research and put into practice nursing based on scientific evidence	① Can you explore the problems of nursing science based on scientific evidence? ② Can you draft a practical training and research plan based on scientific evidence?
7. Ability to put into practice in area of expertise: Ability to put nursing into practice in area of expertise: an ability to acquire knowledge and skills in the area of expertise of nursing science and educate/research put such knowledge and skills into practice for nursing	① Can you acquire knowledge in the area of expertise as the basis of nursing science? ② Can you apply scientific evidence to education/research/practices for nursing?

8. Interdiscipline of nursing: Ability to scientifically put nursing into practice from an interdisciplinary viewpoint	① Can you understand nursing science based on relevance with other academic areas? ② Can you conduct education/research/practices based on scientific evidence from an interdisciplinary viewpoint?
9. Sensitivity and ethical view of nursing: Ability to research and put into practice nursing science based on rich sensitivity/firm ethical view	① Can you draft a research plan that considers research ethics for research tasks and appropriately implements such a plan? ② Can you put nursing into practice with ethical sensitivity?
10. Ability to research and put into practice to aim at international applicability: an ability to use international research outcomes to students' research/practices and intend to study and put such findings into practice for nursing	Can you research/put into practice nursing by using research both inside and outside Japan?

#### Dissertation evaluation criteria

(Evaluation criteria)

<Master's thesis>

1. The contents of research contribute to nursing science.
2. The research is conducted by making use of appropriate methods by clearly setting its meaning and purpose.
3. The previous research is sufficiently considered.
4. The research generally has a consistency, and the thesis is written with appropriate form and writing style.
5. There is no ethical problem upon implementation of research or publication of its results.

<Research outcomes concerning specific issues>

1. The contents of the research for specific theme shall contribute to high level nursing practices.
2. The research is conducted by making use of appropriate methods by clearly setting its meaning and purpose for nursing practices.
3. The previous research and application to practices is sufficiently considered
4. The research generally has a consistency, and the thesis is written with appropriate form and writing style.
5. There is no ethical problem upon implementation of research or publication of its results.

(Procedures for evaluation)

- In the spring term of the second year, the research progress of each student shall be evaluated through oral examination regarding research plan by one faculty member.  
The faculty member of nursing science master's degree program with different specialized research shall evaluate such research plan.
- For the students who are expected to acquire more credits required for studying the course for more than two years and completion of the course, examination and the final examination for the master's thesis shall be performed.
- The examination committee for master's thesis shall be composed of one chief examiner and two or more sub examiners, which examines level of completion of research for each student through public presentation and subsequent oral examination. The faculty member of nursing science master's degree program with different specialized research shall evaluate such research plan.

#### Curriculum Policy

The curriculum shall aim at cultivating interdisciplinary and international perspective in the area of nursing science for the students and develop an ability to explore nursing based on firm ethical view and scientific evidence and distinguished specialized knowledge/skills/practical ability as the basis of research/practices of nursing necessary to take up highly specialized occupation in the area of nursing science. In addition, by students' studying abroad in the universities that have academic exchange agreement and revitalization of academic exchange relating to education/research, the environment shall be provided where students may engage in education/research activities on global level.



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Curriculum  
organization policy

- The subjects as the basis of Major Subjects and promote rich humanity with a broad knowledge that corresponds to diversified needs due to progress in medical technology and changes in disease structure and scientific thinking shall be set as Foundation Subjects for Major.
- Students shall be recommended that students take Graduate General Education Courses, Inter-disciplinary Foundation Courses and Degree Programs' Common Courses in order to cultivate basic knowledge and a broad perspective of the relevant area and generic competences centered on students' major.
- "Introduction to Academic Integrity" as Graduate General Education Course (1 credit) shall be a compulsory subject.
- The following training courses shall be set in accordance with the career path after completion of the master's degree course. ① research basic course to develop research basic ability to go on to the doctoral program, ② course to train midwives with research basic ability and highly practical ability.

[Research basic course]

- Through "Topics in Nursing Science", "Research Methods in Nursing Science" as Foundation Subjects for Major for Major, Major Subjects, practical training as Major Subjects (common) and "Research in Nursing Science", an ability to explore nursing based on scientific evidence shall be acquired.
- Through "Research Methods in Nursing Science", "Health Statistics", Foundation Subjects for Major, practical training as Major Subjects (common) and "Research in Nursing Science", an ability to research/educate nursing with specialized knowledge and skills as the basis of nursing science.
- Through "Topics in Nursing Science" as Foundation Subjects for Major, Graduate General Education Courses, specialized subjects relating to other area of expertise and "Research in Nursing Science" as Major Subjects (common), an ability to scientifically analyze nursing from interdisciplinary perspective shall be acquired.
- Through eAPRIN, ethical educational course in clinical study, Foundation Subjects for Major and "Research in Nursing Science" as Major Subjects (common) etc., research ability for nursing science based on rich sensitivity and firm ethical view shall be acquired.
- Through learning "Global Health Nursing" as a specialized basic subject and special lectures by the lecturers of the universities with academic exchange agreement etc., an ability to intend for global nursing research shall be acquired. In addition, through "Research Methods in Nursing Science" as Major Subjects, criticism of the previous research in Major Subjects of each student's area of expertise and "Research in Nursing Science" as Major Subjects (common), an ability to make use of the nursing research outcomes on global level for students' own research.

[Course to train midwives]

- Through "Topics in Nursing Science", "Research Methods in Nursing Science" and "Midwifery Practicum I/II" as Foundation Subjects for Major, Major Subjects, practical training as Major Subjects (common) and "Research in Nursing Science" etc. as Major Subjects (common), an ability to explore midwifery based on scientific evidence.
  - Through "Research Methods in Nursing Science", "Health Statistics" and "Nursing Education" as Foundation Subjects for Major, Major Subjects, practical training and "Research in Nursing Science" etc. as Major Subjects (common) other than 31 credits necessary for acquisition of national nursing qualification, abilities for practical midwifery and research shall be acquired by integrating specialization of midwifery with the basis of nursing science.
  - Through "Topics in Nursing Science", Graduate General Education Course and "Research in Nursing Science" as Major Subjects (common), an ability to scientifically analyze midwifery from interdisciplinary perspective.
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	<ul style="list-style-type: none"> <li>• Through eAPRIN, ethical educational course in clinical study, “Bioethics in Midwifery” as Foundation Subjects for Major necessary for acquisition of national midwife qualification, Major Subjects, practical training and “Research in Nursing Science” etc. as Major Subjects (common), practical ability for midwifery based on rich sensitivity and firm ethical view as a midwife shall be acquired.</li> <li>• Through “Global Health Nursing” as Foundation Subjects for Major and special lectures etc. by the lecturers at the universities with academic exchange agreement, an ability to intend for international midwifery practice shall be acquired. In addition, through “Research Methods in Nursing Science” as Foundation Subjects for Major, criticism of the previous research in Major Subjects and “Research in Nursing Science” as Major Subjects (common), an ability to make use of the findings of midwifery research on global level for midwifery practice.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• The Foundation Subjects for Major to be taken for acquisition of master’s degree shall be 8 or more credits including “Topics in Nursing Science” (2 credits) (Graduate General Education Courses and the subjects of other major may be included).</li> <li>• The Major Subjects to be taken for acquisition of master’s degree shall be 8 or more subjects including “Topics” of each student’s own major (2 credits) and “Seminars” (2 credits).</li> <li>• The Major Subjects (common) to be taken for acquisition of master’s degree shall be 6 or more subjects including either “Internship” (2 credits) or “Clinical Practicum in Nursing Science” (2 credits) other than “Research in Nursing Science” (4 credits).</li> <li>• The number of credits necessary for completion of master’s degree course shall be 30 or more; however, in the case where students desire to meet the requirements for a midwife, 61 or more including 31 credits as requirements to take examination of national qualification.</li> <li>• “Research in Nursing Science” shall be a compulsory subject that provides instruction for preparing research outcomes concerning the master’s thesis or specific theme in each research group. The students aiming at the career path corresponding to the course to train midwives may receive the examination concerning the research outcomes relating to a specific theme instead of a master’s thesis. The research outcomes relating to a particular theme need to be the ones to certify the acquisition of the ability to conduct advanced nursing practice.</li> <li>• In April of the first year, by determining the supervisor and sub supervisors in each student’s area of expertise, the system to have the students receive master’s thesis instruction shall be organized. In April of the second year, the research plan document shall be examined by designating one faculty member from other specialized research area as an examiner and necessary suggestion shall be provided. Regarding the research tasks targeting human beings, such research shall be started after obtaining consent for such research plan document from appropriate ethics committee.</li> <li>• In December of the second year, by holding the presentation for research outcomes concerning master’s thesis or specific theme, going through preliminary examination of the thesis by the thesis examination committee, a pass or a failure shall be judged by the examination of the thesis and final examination which is performed in the following January.</li> <li>• One credit of “Introduction to Academic Integrity” from Graduate General Education Courses and more than one credit from Inter-disciplinary Foundation Courses shall be the compulsory subject for completing the master’s degree course.</li> </ul>

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Evaluation of learning  
outcomes

- Each course instructor will grade the course according to the evaluation criteria in the syllabus, and the course director will report the final grade for the course.
- Competencies corresponding to credit acquisition status and extracurricular activities are established for the evaluation of achievement, and are evaluated once a year against the standards set by the degree program.
- Practical training subjects to develop practical ability shall be evaluated by the faculty members in charge of subjects in accordance with evaluation criteria by clarifying the purpose of practical training and its evaluation criteria on guide for practical training and the person responsible for each subject shall report as the results of final evaluation for level of achievement.
- The evaluation method of the findings of the master's thesis or research for specific theme shall be as follows:
  - In the spring term of the second year, the research progress of each student shall be evaluated through oral examination regarding research plan by one faculty member. The faculty member of nursing science master's degree program with different specialized research shall evaluate such research plan.

The reviewers evaluate the research plan from the following five perspectives: ① If capable of having systematically indicated the background of research, ② If capable of having clarified the research purpose, ③ If capable of having appropriately specified the meaning of research, ④ If capable of having selected research method corresponding to the research purpose, ⑤ If ethically considering the research plan.
  - For the students who are expected to acquire more credits required for studying the course for more than two years and completion of the course, examination and the final examination for the master's thesis shall be performed. The examination committee for master's thesis shall be composed of one chief examiner and two or more sub examiners, which examines level of completion of research for each student through public presentation and subsequent oral examination. The faculty member of nursing science master's degree program with different specialized research shall evaluate such research plan.

The master's thesis shall be evaluated from the following five perspectives: ① The contents of research contribute to nursing science, ② The research is conducted by making use of appropriate methods by clearly setting its meaning and purpose, ③ The previous research is sufficiently considered, ④ The research generally has a consistency, and the thesis is written with appropriate form and writing style, ⑤ There is no ethical problem upon implementation of research or publication of its results.
  - The students of the course to train midwives may be substitute a pass of the examination and final examination of the master's degree with a pass of examination and final examination of special theme. The examination method shall be equivalent to the ones for master's thesis. The findings of special theme shall be evaluated as follows: ① The contents of specific theme research contribute to nursing science, ② The research is conducted by making use of appropriate methods by clearly setting meaning and purpose for nursing, ③ Application to the previous research and practice is sufficiently considered, ④ The research generally has a consistency, and the thesis is written with appropriate form and writing style, ⑤ There is no ethical problem upon implementation of research or publication of its results.

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Admission Policy

Desired students

The desired students shall have fundamental knowledge relating to nursing science, motivation to explore nursing on global level based on firm ethical view and scientific evidence and aim at becoming educators that play a role as instructors for nursing, researchers, and midwives.

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Selection policy

- The entrance examination shall be performed in August. In the case where there are insufficient number of applicants in the examination of August, the examination shall be implemented again in the following February.
- The number of students to be accepted shall be 15 (including applicant for special selection of international students and working individuals).
- The applicants for special selection of working individuals shall fall under any of the following items with work experience of approximately three or more years (the total of the years is available): ① the person who has graduated from university (four-year universities) or is expected to do so by March of the previous fiscal year of entrance, ② the person who has been awarded the degree, or is expected to be done so by March of the previous fiscal year of entrance, ③ the person who has taken 16-year course in school education abroad or is expected to do so by March of the previous fiscal year of entrance, ④ the person who has been judged as having equivalent academic abilities or more to the one who has graduated from university by the examination for application requirements implemented by Graduated School of Tsukuba University, who has reached 22 years old or the one who is expected to do so by March of the previous fiscal year of entrance.
- By general examination, academic abilities and personality shall be evaluated by written examination of specialized subject (basic assignments relating to nursing science) and English and oral examination. The purpose of examination of specialized subjects is to evaluate the examinees by their basic knowledge for nursing in a broad range. The purpose of examination of English is to evaluate their ability to read in English in university students' level. By oral examination, the following shall be evaluated: whether the examinees have an ability to complete the course in two years, or whether they have aptitude, qualification, future possibility and clear sense of purpose in the area of nursing science as a practitioner.
- By special selection of working individuals, academic abilities and personality shall be evaluated by written examination of specialized subject (basic assignments relating to nursing science), essay and English and oral examination. The contents of specialized subjects shall be the same with the ones of general examination. The purpose of examination of English is to evaluate their ability to read in English in university students' level. The purpose of examination of essay shall be to evaluate an ability to logically state the idea relating to medical care. The purpose of oral examination and the examination hours shall be same with the ones of general examination.
- For the examinees of international students, the following shall be considered: the questions shall be in English and preparation of such questions shall be devised etc.

## Master's Program in Medical Sciences

Name of the degree to be conferred	Master of Science in Medical Sciences
Educational purpose	Frontier medical science is an interdisciplinary area that covers broad areas such as basic medical sciences, clinical medicine, medical physics, translational research and regulatory science. Based on comprehensive fundamental education for medical science, this program shall provide education/research of practical and broad medicine-related areas that correspond to social needs and train the human resources who can play an active role in realization and maintenance of safe and healthy society as researchers/educators in universities or highly specialized professionals.
Vision of human resources development	<ul style="list-style-type: none"> <li>•The desired students shall be able to promote research in the area of medical science in educational research institutions such as universities and contribute to pioneering new area with fundamental knowledge of medical science in general and deep knowledge of area of expertise.</li> <li>•The human sources who engage in research development and medicine-related services in the corporations relating to medical care with fundamental knowledge of medical science and knowledge of expertised area that meets social needs.</li> <li>•The human resources who can contribute to safety of medical care and health promotion in medical institutions with fundamental knowledge of medical science and practical knowledge of expertised area.</li> </ul>
Diploma Policy	
The degree of Master of Science in Medical Sciences is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Ability to make use of basic knowledge: an ability to make use of comprehensive medical science that covers basic medical sciences, clinical medicine and social physics.	If acquired knowledge related to medical science and an ability to make use of such knowledge.

7. Practical ability: highly specialized knowledge related to medical science and command of such knowledge.	If having acquired highly specialized knowledge related to medical science and command of such knowledge.
8. Research ability: an ability to conduct advanced research relating to medical science.	① If capable of understanding cutting-edge research method and procedures of different areas and applying such method and procedures to research. ② If capable of independently conduct information collection, system establishment and negotiation necessary to complete research.
9. Ability to solve issues: an ability to extract and solve the issues in medical science based on deep specialized knowledge.	If capable of finding important issues based on the latest specialized knowledge in medical science and devise creative research.
10. Ethical view: High level of awareness and ethical view suitable for researchers/highly specialized professionals who engage in medical science.	① If having high level of awareness and motivation for medical science. ② If having ethical view and ethical knowledge suitable for researchers and highly specialized professionals in medicine.

#### Dissertation evaluation criteria

The master's degree (medical science) shall be awarded to the person whose master's thesis is approved as valid regarding the following evaluation items and judged as a pass in final examination after satisfying the requirements prescribed in School Regulations of Tsukuba University.

The evaluation items shall be that:

1. the findings of research are qualitatively and quantitatively eligible for master's thesis.
2. the background of research is referred.
3. the purpose of research is clear.
4. the method of research follows its purpose.
5. the results of research are properly stated.
6. the consideration based on the results of research is appropriately provided.
7. the charts are accurately prepared.
8. the descriptions such as references and abbreviations etc. are accurate.
9. the students sufficiently understand the contents of master's thesis.
10. the students can accurately respond to questions and answer session.
11. the students have understood the research in the relevant areas.
12. there is no research misconduct such as falsification/fabrication or plagiarism in research data.

Research of master's thesis shall be supervised by multiple faculty members as "Dissertation in Medical Sciences". For the students who pass interim examination which shall be conducted from the latter half of the first year to the first half of the second year, the final examination shall be performed. The final examination shall consist of research presentation examination performed by three members of academic affairs committee in public presentation and individual examination performed by the members of master's thesis examination committee (one chief examiner and two sub chief examiners). Through consideration of results of such examination by the thesis examination committee and steering committee of Master's Program in Medical Science and Graduate School Steering Committee, the degree conferment shall be decided.

#### Curriculum Policy

Medical science is an interdisciplinary area that covers broad areas such as basic medical sciences, clinical medicine, medical physics, translational research and regulatory science etc. In the curriculum, students can learn comprehensive knowledge from basic to application necessary to correspond to social needs in these broad areas of medical science and develop research and pioneer new areas, and the knowledge necessary to contribute to safety of safety of medical care and health promotion in medical institutions etc.



Curriculum organization policy	Master's Program in Medical Sciences shall consist of General Foundation Subjects, Foundation Subjects for Major and Major Subjects. Students can learn the fundamental knowledge of medical science by Basic Subjects and Foundation Subjects for Major, and acquire competence in specialized areas according to their desired career path through the Major Subjects. Students shall learn more than 50 % of the General Foundation Subjects, Foundation Subjects for Major and Major Subjects in English. Consideration shall be given in order that international students can acquire the degree only in English. Additionally, students shall acquire comprehensive knowledge/culture of other than in one's own area of expertise and ethical view and cultivate an ability to contribute to human resource development of the next generation.
Learning methods · Processes	<p>The standard study schedule is as follows:</p> <ol style="list-style-type: none"> <li>1. In the first year, students shall take a large number of subjects to meet completion requirements other than Dissertation in Medical Sciences (master's thesis research).</li> <li>2. In the second year, students shall take the subjects to deepen knowledge of medical science centering on Dissertation in Medical Sciences (master's thesis research).</li> <li>3. In the presentation of research plan of the first part of the first year, each student shall present his/her future research plan of master's thesis.</li> <li>4. In the latter half of the first year, the members of master's thesis examination committee excluding research supervisor shall be selected (one chief examiner and two sub chief examiners) and interim individual examination shall be performed according to each student's progress status of research.</li> <li>5. In the beginning of the latter term in the second year, presentation of research outcomes shall be held, where the research outcomes shall be presented so far.</li> <li>6. At the end of the second year, the final examination shall be performed. The final examination shall consist of research presentation examination performed by the members of academic affairs committee in public presentation and individual examination performed by the members of master's thesis examination committee for academic abilities.</li> </ol>
Evaluation of learning outcomes	<ol style="list-style-type: none"> <li>1. The subjects other than Dissertation in Medical Sciences (master's thesis research) shall be evaluated in accordance with the evaluation methods described in the syllabus.</li> <li>2. The final evaluation for Dissertation in Medical Sciences (master's thesis research) shall be performed by evaluating the following items of (1) to (4). <ol style="list-style-type: none"> <li>(1) Evaluation by presentation of research plan, interim individual examination, presentation of research outcomes and public presentation by members of academic affairs committee and public presentation.</li> <li>(2) Evaluation in individual examination of master's thesis by the members of master's thesis examination committee.</li> <li>(3) Evaluation by the supervisor of master's thesis.</li> <li>(4) Evaluation in the presentation of academic conferences and presentation of research thesis.</li> </ol> </li> </ol>
Admission Policy	
Desired students	For this course, enrollment of the persons shall be required who have basic knowledge relating to medical science and motivation to actively perform research with an ability to logically analyze and creative and flexible idea. After enrollment, the students shall be required not only to learn fundamental knowledge of medical science and highly specialized knowledge, but also to have abilities to explore and independently solve various problems in their area of expertises they face from comprehensive perspective.
Selection policy	<ul style="list-style-type: none"> <li>• By conducting and comprehensively evaluating both written examination and oral examination, the entrants shall be selected.</li> <li>• By written examination, English ability and basic knowledge related medical science shall be evaluated.</li> <li>• By oral examination, an ability for logical analysis, an ability for creative and flexible idea and motivation for learning shall be evaluated.</li> <li>• Both written and oral examination shall be performed either in Japanese or in English according to the applicants' desire.</li> </ul>

## Master's Program in Public Health

Name of the degree to be conferred	Master of Public Health
Educational purpose	This course shall aim at acquiring knowledge and skills to enhance specialization of public health centering on the five core areas: epidemiology, biostatistics, health policy and management, environmental health and social and behavioral sciences. In addition, students shall be actively encouraged to take classes of relevant areas and aim at improvement of interdisciplinary. In order to foster human resources that play an active role globally, all the General Foundation Subjects /compulsory subjects shall be established in English by creating environment where students can learn together with international students.
Vision of human resources development	The following persons shall be developed: policy-makers of health and medical treatment, administrative practitioners of health/medicine, epidemiology specialists, biostatistics specialists, practitioners of local medical care, specialists of medical safety and management, specialists of health education and health promotion, and other practitioners that acquire specialized techniques of public health.
Diploma Policy	
The degree of Master of Public Health is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Core area 1 of public health sciences: epidemiology: an ability for application of epidemiology skills to apply basic knowledge relating to epidemiology as the core area of public health and an ability to apply such knowledge in public health activities.	Students shall learn if capable of solving health problems of human population or the method to verify research design, research ethics, data collection and interpretation and acquire an ability to practically apply it.

7. Core area 2 of public health sciences: an ability for application of biostatistics skills to apply basic knowledge relating to biostatistics as the core area of public health and an ability to apply such knowledge in public health activities.	Students shall learn the basic of biostatistics and acquire an ability relating to practical application of biostatistics from planning, selecting analysis method to putting into practice/interpretation of data.
8. Core area 3 of public health sciences: an ability for application of health policy and management skills to apply basic knowledge relating to health policy and management as the core area of public health and an ability to apply such knowledge in public health activities.	Students shall analyze the issues relating to health/medical care such as disease prevention/medical care/nursing care etc. by making use of policy statement and economics and procedures of health policy and management and acquire an ability to connect such learning with policy proposal.
9. Core area 4 of public health sciences: an ability for application of social and behavioral sciences skills to apply basic knowledge relating to social and behavioral sciences as the core area of public health and an ability to apply such knowledge in public health activities.	Students shall learn the procedures of social science and behavioral science and acquire the skills to apply such learning to research relating to salutogenesis and intervention activities in society.
10. Core area 5 of public health sciences: an ability for application of environmental health sciences skills to apply basic knowledge relating to environmental health sciences as the core area of public health and an ability to apply such knowledge in public health activities.	Students shall learn the impact on human health by environment and acquire knowledge/skills to plan/carry out environmental health measures in an international framework.

#### Dissertation evaluation criteria

The master's degree (public health sciences) shall be awarded to the person whose master's thesis is approved as valid regarding the following evaluation items and judged as a pass in final examination after satisfying the requirements prescribed in school regulations of University of Tsukuba. The evaluation item shall include meaning of research tasks, grasping and understanding of previous research, validity of research method, conclusion and validity of logics to lead such conclusion, appropriateness of features/structure, appropriate quotation of literature/materials. Research of master's thesis shall be supervised by multiple faculty members as "Dissertation in Public Health Sciences". For the students who pass interim examination which shall be conducted from the latter half of the first year to the first half of the second year, the final examination shall be performed. Through consideration of results of such examination by the thesis examination committee and steering committee of Master's Program in Public Health Sciences and Graduate School Steering Committee, the degree conferment shall be decided.

## Curriculum Policy

The curriculum of Master's Program in Public Health shall consist of basic subjects and specialized subjects, which is organized in order that students can learn specialized knowledge of public health sciences while comprehensively leaning by selecting from established subjects. In line with the curriculum of international standard required for acquisition of Master of Public Health (MPH) degree, the compulsory subjects shall be designated focusing on core learning areas. By establishing all the compulsory subjects and most of the selective compulsory subjects in English, the environment shall be organized in order that not only international students but also Japanese can acquire the degree by the curriculum in English. Additionally, by making use of the systems of TA (Teaching Assistant) and TF (Teaching Fellow) of University of Tsukuba, students can acquire educational ability to become educators in educational research institutions such as universities etc. in the future.

Curriculum organization policy	The fundamental knowledge regarding the core study of public health sciences including epidemiology, biostatistics, health policy and management, environmental health and social and behavioral sciences shall be mainly evaluated by written examination. An ability relating to collection and analysis of information in public health sciences area shall be evaluated regarding students' ability to carry out it mainly through epidemiology and biostatistics analysis practicum, written examination and students term papers. The degree of achievement of the subjects taken in one's own area of expertise and relevant areas shall be judged in accordance with objectives to be achieved and evaluation standard and the feedback shall be provided for students. For master's thesis, in addition to evaluation by interim individual examination by the members of the thesis examination committee, students' ability for presentation/questions and answers in interim presentation by the members of academic affairs committee, by providing feedback for students as advice to improve their research, it shall be guaranteed that the level of the thesis becomes appropriate for the degree in the final examination.
Learning methods • Processes	<p>The standard study schedule is as follows:</p> <ol style="list-style-type: none"> <li>1. In the first year, students shall take subjects to meet completion requirements other than Dissertation in Public Health Special Exercise (master's thesis research).</li> <li>2. In the second year, students shall take the Major Subjects focusing on specialized subjects.</li> <li>3. In the latter half of the first year, the members of master's thesis examination committee shall be selected excluding research supervisor (one chief examiner and two sub chief examiners) and interim individual examination shall be performed according to each student's progress status of research.</li> <li>4. In the beginning of the latter term in the second year, presentation of research outcomes shall be held, where the research outcomes shall be presented so far.</li> <li>5. At the end of the second year, the final examination shall be performed. The final examination shall consist of research presentation examination performed by the members of academic affairs committee at an open conference and individual examination performed by the members of master's thesis examination committee.</li> </ol>
Evaluation of learning outcomes	<ol style="list-style-type: none"> <li>1. The subjects other than Dissertation in Public Health Special Exercise (master's thesis research) shall be evaluated in accordance with the evaluation methods described in the syllabus.</li> <li>2. The final evaluation for Dissertation in Public Health Special Exercise (master's thesis research) shall be performed by evaluating the following items of (1) to (5).               <ol style="list-style-type: none"> <li>(1) Evaluation by the members of academic affairs committee in interim individual examination, presentation for research outcomes and public presentation.</li> <li>(2) Evaluation in individual examination of master's thesis by the members of master's thesis examination committee.</li> <li>(3) Evaluation by the supervisor of master's thesis.</li> <li>(4) Evaluation in the presentation of academic conferences and presentation of research thesis.</li> <li>(5) Evaluation for the activities related to public health.</li> </ol> </li> </ol>

## Admission Policy

Desired students	For this program, the persons who have motivation to actively solve problems of public health with an ability to logically analyze having creative and flexible idea shall be enrolled. The students shall be required not only to learn according to the curriculum, but also to have attitude to explore and independently solve various problems in their area of expertise from comprehensive perspective through research for master's thesis and internship.
Selection policy	By written examination and oral examination, the entrants shall be selected. The questions in written examinations shall be prepared to enable both English ability and basic knowledge relating to public health sciences of the students to be evaluated. The oral examination shall be performed in Japanese or in English.

## Master's Program in Physical Education, Health and Sport Sciences

Name of the degree to be conferred	Master of Physical Education, Health and Sport Sciences
Educational purpose	By setting physical education, sport, health and coaching as keywords, this program shall train highly specialized professionals as the top runners in global era and the human resources who acquire the basis as the researchers that intend to deepen various kinds of sciences by work on various problems relating to human body and exercise, its culture and environment, and additionally mental and physical adjustment in an interdisciplinary way and cultivating an ability and rich knowledge as the basis of such ability necessary for carrying out research in an independent/self-governing way which is developed on the basis of educational research institutions that have one's own areas/fields of expertise of the scale which the world has never seen.
Vision of human resources development	The desired students shall become the specialized professionals who systematically understand physical education, health and sport sciences which is developed based on the essentials relating to physical education/sport/health, such as sport culture and global society, health promotion and vitality improvement, mechanism of physical exercises and competition ability improvement etc., have practical ability of high level to solve various problems that may be caused on the actual sites with broad perspective and specialized knowledge/skills, and additionally the human resources who are expected to play a leading role such as managers/coaches who lead countries in various kinds of sport competition, and the ones who lead coaching education of countries in educational institutions such as universities etc.
Diploma Policy	
The degree of Master of Physical Education, Health and Sport Sciences is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: basic knowledge and skills to set research tasks in physical education/sport/health/coaching areas and research plan.	① If having acquired basic knowledge in order to set research tasks. ② If having acquired basic skills in order to carry out research plan.



7. Specialized knowledge: highly specialized knowledge in physical education/sport/health/coaching areas.	① If capable of practically utilize specialized knowledge relating to physical education/sport/health/coaching areas in educational sites and coaching sites.
8. Practical ability: practical command of specialized knowledge in physical education/sport/health/coaching areas.	① If having acquired basic and specialized knowledge relating to physical education/sport/health/coaching areas.
9. Ethical view: ethical knowledge and ethical view appropriate for the human resources or highly specialized professionals who have basic research ability in physical education/sport/health/coaching areas.	① If having ethical knowledge appropriate for the human resources who have basic research ability. ② If having ethical view appropriate for highly specialized professionals.

#### Dissertation evaluation criteria

After satisfying the requirements prescribed in School Regulations of Tsukuba University, the doctoral thesis shall be approved as valid regarding the following evaluation items and judged as a pass in final examination.

(Evaluation items)

The examination committee for master's thesis established in order to implement examination of master's thesis etc. shall be composed of one chief examiner and two or more sub examiners.

1. The chief examiner shall be the supervisor of the said master's degree program.
2. The chief examiner and sub chief examiner(s) shall have the master's degree or more; provided that the sub chief examiner who do not have the master's degree or more may be allowed as an exception.
3. In the sub chief examiners, two Graduate School members shall be included. If necessary, it is possible to add the person fit as a sub examiner from outside Graduate School approved by educational conference of the said Degree Program.
4. The number of the person fit as a sub examiner from outside Graduate School shall not exceed the one of the chief examiner and sub examiner selected from the Graduate School.

(Evaluation items)

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in Physical education area is clearly described.
2. Right amount of original research outcomes that contribute to development of Physical education area is contained as master's thesis.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as master's thesis of the said area.

#### Curriculum Policy

In this program, by setting physical education, sport, health and coaching as keywords, students shall work on various problems relating to human body and exercise, its culture and environment, and additionally mental and physical adjustment in an interdisciplinary way. For this purpose, there are as many as 39 complex research areas to understand specialized knowledge and methodology in cultural sciences, social science and natural science as basic sciences or in many academic areas (philosophy, ethics, historical science, anthropology, pedagogy, sociology, jurisprudence, economics, business administration, psychology, physics, engineering science, medical science, chemistry, biology and statistics).

Additionally, while each research area provides subject registration model in six systems while collaborating with each other, in order to develop competent knowledge/specialized knowledge/ethical view/research ability/practical ability/ability to lead, all the members centering on full-time teachers shall participate in education/research supervision. Furthermore, efforts shall be made to connect mainly with Doctoral Program in Physical Education, Health and Sport Sciences (D), Doctoral Program in Sport Medicine (D), Doctoral Program in Coaching Science (D) etc. regarding research instruction contents.

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Curriculum  
organization policy

- In order to secure diploma policy of this Master's Degree Program, the subjects shall be divided into three categories of Major Subjects, Foundation Subjects for Major and General Foundation Subjects. The groups of subjects corresponding to each subject category shall be as follows: "boundary subjects", "area-specific subjects, research basic subjects", "relevant area-specific subjects, Graduate General Education Courses, Inter-disciplinary Foundation Courses".
  - In order to acquire specialized knowledge and an ability to see from a higher perspective/ to lead, and also to correspond to a broad scope of work of this Degree Program (demand for human resources), the following six systems shall be established: 1) Sport Culture, Management and Politics, 2) Health and Sport Education, 3) Health and Fitness, 4) Athletic Conditioning, 5) Sport Coaching and 6) National Leading Coach Development.
  - "Thesis Supervision" shall be performed in the following 39 research areas: Philosophy of PE and Sport, History of PE and Sport Anthropology, Sport Sociology, Theory of Budo, Management of PE and Sport, Sport Policy, Sport Industry, Sport Pedagogy, Theory of Adapted PE and Sport, Sport Psychology, Health Education, Environmental Health, Sport Physiology, Sport Biochemistry, Sport Nutrition, Physical Fitness, Health and Fitness for Active Living, Measurement and Evaluation of Sport, Sport Medicine for Wellness, Sport Medicine for Motor System, Sport Biomechanics, Applied Anatomy, General theory of Coaching and Training, theory of Movement, Coaching in Gymnastics, Coaching in Sport Gymnastics, Coaching in Track & Area, Coaching in Swimming, Coaching in Basketball, Coaching in volleyball, Coaching in Handball, Coaching in Soccer, Coaching in Rugby, Coaching in Racket an Bat Sports, Coaching in Judo, Coaching in Kendo, Coaching in Kyudo, Outdoor Pursuits and Education, and Coaching in Dance Studies.
  - By boundary subjects, the specialized knowledge and a basic ability as a researcher shall be acquired.
  - By area-specific subjects, specialized knowledge and an ability to solve problems/an ability to lead shall be acquired.
  - By research methodology of research basic subject, basic knowledge and a broad perspective, ethical view, competent knowledge and basic research method shall be acquired. Furthermore, in addition to Graduate General Education Courses (especially, the group of subjects such as training of international character etc.), The practicum focusing on discussion of Problem-based Learning type, an ability to understand and communication skills as highly specialized professionals and researchers and international character shall be acquired.
  - For the purpose of smooth connection in education/research supervision contents with Doctoral Degree Program, each area-specific subject shall be arranged while taking curriculum into consideration: regarding the area 1) to 3), mainly Doctoral Program in Physical Education, Health and Sport Sciences (D), the area 3) to 4), mainly Doctoral Program in Sport Medicine (D), the area 5) to 6), Doctoral Program in Coaching Science (D). Additionally, the students who desire to advance to the Doctoral Degree Course, in order to acquire a broad relevant knowledge while they learn in the Master's Degree Course, it shall be recommended that they take Graduate General Education Courses, Inter-disciplinary Foundation Courses.
  - As formation of career path, through the following recommendation, this course shall allow students to acquire practical ability to promptly and accurately correspond to on-site needs: completion of the subjects to be able to acquire specialized certificate and practical training subjects established by PE center for the persons who desire to become PE teachers, completion of internship and Graduate General Education Courses (subject group such as career management etc.) for the ones who desire to be employed in companies/government agencies and to become coaches, and completion of subjects for international character specialized in English necessary for explanation and coaching of Japanese culture for the ones who desire to become the coaches of international level.
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Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students shall acquire 30 or more credits in total from the designated scope of each group of subjects in “Major Subjects” (6 to 8 credits), “Foundation Subjects for Major” (13 to 23 credits) and “General Foundation Subjects” (0 to 6 credit).</li> <li>• By selecting one area from 6 areas, students shall acquire knowledge and skills required for highly specialized professional in specific scope.</li> <li>• Students shall create master’s thesis by belonging to any of 39 research areas.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• To acquire 30 or more credits in total of the subjects in which the achievement items of stages are evaluated in each practicum and research methodology.</li> <li>• To pass in interim reporting in the second year.</li> <li>• To pass examination for master’s thesis.</li> <li>• To pass final examination.</li> </ul>
Admission Policy	
Desired students	<p>The desired students shall establish world peace and friendly relations, contribute to rich lives of people in local communities, love sport, have an ability to grasp various problems relating to sport culture and social environment, physical education/physical activities/sport and, mechanism between human bodies and exercise, and have qualification to globally play an active role as leaders.</p> <p>Moreover, the human resources who are expected to play a leading role in general organizations in the future and lead coaching education of Japan in educational institutions such as universities etc. shall be required.</p>
Selection policy	<ul style="list-style-type: none"> <li>• Recommendation entrance examination (general selection/special selection of working individuals) and general examination (general examination/special selection of working individuals) shall be implemented.</li> <li>• In recommendation entrance examination, document screening and oral examination shall be implemented both for general selection/special selection of working individuals.</li> <li>• In general selection of general examination, examination of foreign language, oral examination and examination of specialized subjects shall be implemented, and in its special selection of working individuals, oral examination and examination of specialized subjects shall be implemented.</li> </ul>

## Master's Program in Sport and Olympic Studies

Name of the degree to be conferred	Master of Arts in Sport and Olympic Studies
Educational purpose	This degree program shall aim at training the human resources who can seek for management ability of high level and integrity of sport required in international sport areas for the future. This program shall also train the human resources for sport required for the future in collaboration with International Olympic Committee or International Federations.
Vision of human resources development	<ul style="list-style-type: none"> <li>•The human resources who can exhibit leadership in the world by comprehensively learning cutting-edge knowledge necessary in the sport world of the 21st century, making use of management ability of high level and creating values of sport in society.</li> <li>•The human resources who can acquire management ability to learn Olympic/Paralympic education and the most advanced sport sciences and apply to each site, in collaboration with IOC, IPC, JOC, JPC, JSC, JADA.</li> </ul>

### Diploma Policy

The degree of Master of Arts in Sport and Olympic Studies is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Understanding of Olympic/Paralympic Studies: an ability to understand values of Olympic and Paralympic and their social role.	① Ability to understand history of Olympic and Paralympic and their values. ② Ability to develop their social role.
7. Specialized understanding relating to physical education/sport/health: an ability to provide overview the problems of Olympic Studies in the studies of physical education/sport/health and the method to make use of them.	Ability to see from a higher perspective related to positioning of Sport and Olympic Studies in various sport sciences.

8. Ability to understand Japanese culture: an ability to understand Budo/Japanese culture and communication skills based on English.	① Ability to understand Japanese culture including Budo and manners and develop them in various places. ② Ability to convey Budo and Japanese culture through English.
9. Ability to develop Sport and Olympic Studies: an ability to see from a higher perspective on a global scale and management ability on a global scale with consideration to people living in local communities.	Ability to manage Olympic education and sport events in various countries.

#### Dissertation evaluation criteria

##### <Master's thesis>

1. That the contents of research contribute to academic development of the area of Sport and Olympic Studies.
2. That the meaning and purpose of research is clear and its outcomes are induced by making use of appropriate research methods.
3. The previous research is sufficiently considered.
4. That the expression of thesis writing and way of writing are appropriate throughout thesis.
5. That there is no ethical problem in the process of research.

##### 【Examination method and examination system】

The examination method shall be as follows: the oral presentation shall be performed for the thesis as the final examination and such presentation shall be evaluated by the scores according to the examination standard by three members in charge of this Degree Program. The score of more than 60 points shall be judged as a pass.

#### Curriculum Policy

Education/research supervision shall be provided in order to cultivate broad basic culture in Olympic/Paralympic movement sport and sport management, a broad view over Budo and sport sciences, and competencies that support success in various scenes of society, along with research ability/specialized knowledge/ethical view in the three areas of PE and Sport, Coaching Science and Health Sciences.

Curriculum organization policy	<p>Students shall belong to any of four areas (Olympic/Paralympic Education, Sport Management, Sport Science and Medicine, Teaching/Coaching/Japanese Culture) and take the practicum of such area. Based on the students' major, in order to contribute to cultivating basic culture and a broad perspective, and competencies, it is recommended that one credit be taken from Graduate General Education Courses, Inter-disciplinary Foundation Courses and Degree Programs' Common Courses. The specialized lectures as specialized courses in area of expertise and practical training and special research as selective compulsory courses shall be registered and basic knowledge and skills of the area of expertise shall be learned.</p> <p>11 credits shall be arranged as compulsory subjects as specialized basic subjects to understand and learn Olympism and value of sport and Japanese culture.</p> <p>In order to achieve an ability to understand Budo/Japanese culture and communication skills based on English and an ability to see from a higher perspective on a global scale and management ability on a global scale with consideration to people living in local communities, common specialized subjects shall be arranged and internship for around four weeks shall be provided. Additionally, through the lectures and practicum in which external researchers and practitioners, management ability and communication skills shall be acquired as highly specialized professionals. It is also recommended that students actively participate in and give presentation in domestic sport organizations and relevant academic conferences and workshops.</p>
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Learning methods · Processes	At the same time as enrollment, with consideration to students' desire and future career path, students shall be classified into any of four areas (Olympic/Paralympic Education, Sport Management, Sport Science and Medicine, Teaching/Coaching/Japanese Culture). Simultaneously, their supervisors shall be also decided. By consulting with the supervisor and sub supervisor(s), 30 or more credits in total shall be acquired from 10 credits of Degree Programs' Common Courses, Inter-disciplinary Foundation Courses, Graduate General Education Courses and Foundation Subjects for Major (compulsory), 0 to 3 credits of Foundation Subjects for Major (selective), 8 to 10 credits of Major Subjects (common) and 4 to 10 credits of Major Subjects (area of expertise) and the master's thesis shall be created. The place to serve students' internship shall be determined based on the students' desire, after consulting with their supervisor, by referring to internship committee.
Evaluation of learning outcomes	<p>Along with acquisition of 30 or more credits in total of the subjects by which the achievement items of stages are evaluated in each practicum and research methodology, the following conditions shall be met:</p> <ul style="list-style-type: none"> <li>•To pass interim reporting for the master's thesis in the second year.</li> <li>•To acquire a practical ability in internship of four weeks.</li> <li>•To pass the examination for the master's thesis.</li> <li>•To pass final examination.</li> </ul>
Admission Policy	
Desired students	<p>The desired students shall have the following enthusiasm and qualification:</p> <ol style="list-style-type: none"> <li>1. The persons who have basic knowledge relating to Olympic/Paralympic and motivation/sense of mission to promote integrity of sport.</li> <li>2. The persons who have basic knowledge relating to studies related to sport/physical education/health and operational experience relating to sport (experience such as sport practice, instruction such as coaching, and event management etc.).</li> <li>3. The persons who have interest in Olympic/Paralympic education and sport management.</li> <li>4. The persons who have communication skills in English and understand importance and fairness to cooperatively achieve things.</li> </ol>
Selection policy	General selection only. In April of the previous year, application guidelines shall be disclosed on the website. The application period shall be from the beginning to the middle of December of the previous year. Documents regarding the reasons for the applicants' applications and research plan shall be accepted. In late January, the entrance examination (oral examination) shall be implemented. The pass or failure shall be determined by the total score (on a 400-point scale of the total points) of oral examination and document evaluation. In the document evaluation, the reasons for the applicants' applications, research plan and previous experience shall be evaluated (on a 100-point scale of the average points of examiners). In the oral examination, the reasons for the applicants' applications, research plan, basic knowledge relating to Sport and Olympic Studies and communication skills in English shall be evaluated (on a 300-point scale of the total points by examiners).



## Master's Program in Sport and Wellness Promotion

Name of the degree to be conferred	Master of Sport and Wellness Promotion
Educational purpose	This Degree Program shall aim at training the practical highly specialized professionals who have an ability to understand the idea and method to generate synergistic effects to promote sport and wellness and plan, design and analyze basic policy and strategy for the above-mentioned based on the practical experience where the students have engaged in promotion of sport wellness, an ability to assess necessary resources and systemize them and an ability to appropriate manage advanced system and an ability to develop reasonable programs etc.
Vision of human resources development	The desire students shall exhibit leadership in the group of experts including in sport associations, administrative agencies and corporations etc. and contribute to further development of sport and wellness.

### Diploma Policy

The degree of Master of Sport and Wellness Promotion is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Research ability: Basic knowledge and ability to set research tasks and carry out a research plan in the areas of sports wellness.	① If capable of researching societal challenges in the field of sports and wellness with a spirit of scientific inquiry. ② If capable of drafting and creating appropriate research plan relating to the area of sport and wellness. ③ If capable of completing and presenting appropriate master's thesis relating to the area of sport and wellness.
7. Specialized knowledge: Advanced specialized knowledge and command of the areas of sports wellness.	If capable of acquiring and utilizing highly specialized knowledge of the area of sport and wellness.
8. Ethical view: the persons with basic research ability in the area of sport and wellness or with ethical view and ethical knowledge appropriate for highly specialized professionals.	If having acquired basic research ability, ethical view and ethical knowledge of the area of sport and wellness.

## Dissertation evaluation criteria

This degree program designates both the master's thesis and the specific task research report as academic dissertations. Upon completion of the program, students are awarded the degree of Master of Sport and Wellness Promotion.

### < Master's thesis >

The research or experimental findings must undergo rigorous statistical and scientific analysis within the context of sports or health-related themes. Alternatively, the study should demonstrate logical coherence and substantive validity through a comprehensive literature review while also exhibiting theoretical originality.

1. Formulation of Research Objectives
2. Review of Previous Studies, Identification of Research Issues, and Methodological Framework
3. Presentation of Results and Discussion, or Analysis of Research Content
4. Conclusion and Future Research Directions

### < Specific task research report >

Engagement in problem-solving and goal attainment concerning specific issues related to sports or health through the application of practical methodologies, accompanied by a well-founded analysis of the process and outcomes, demonstrating empirical creativity.

1. Formulation of the Research Issues and Objectives
2. Project Planning for Resolution
3. Implementation and Evaluation of the Project
4. Analysis and Assessment of Project Outcomes

### (Evaluation Criteria for the Thesis)

1. Ability to research and manage to support enhancement of advanced ability to solve problems
2. Higher perspective and flexible thinking ability
3. Ability to solve problems by organizing a team with the human resources of various areas
4. Ability to promote advanced projects and problem-solving ability
5. Ability to solve problem on a global level by making full use of cutting-edge research skills

The master's thesis shall be judged as having a great social or academic significance in the area of Sport Health Promotion and Sport Wellness Management and a pass or a failure shall be judged by the final examination.

Review board members: The examination committee for master's thesis established in order to implement examination of master's thesis etc. shall be composed of one chief examiner and two or more sub examiners.

Review method and review items, etc: Comprehensive evaluation shall be performed by master's thesis and final examination (presentation and oral examination).

## Curriculum Policy

This Degree Program shall consist of two areas of Sport Health Promotion and Sport Wellness Management. The curriculum of this Degree Program shall be organized in order to acquire basic and practical knowledge and skills in the area of sport and health, an ability to understand the idea and method to generate synergistic effects to promote sport and health and plan, design and analyze basic policy and strategy for the above-mentioned, an ability to assess necessary resources and systemize them and an ability to appropriate manage advanced system and an ability to develop reasonable programs etc.

Curriculum organization policy	<ul style="list-style-type: none"><li>• Competence of knowledge application: to be acquired by Introduction to Sport and Health Promotion, Methodology of Sport and Health Promotion, Sport methods in Sport and Health I, Topics of Sport Promotion, Topics of Sport Event.</li><li>• Management competence: to be acquired by Topics of Sport Event, Seminar in Sport Promotion I and Seminar in Sport Promotion II.</li><li>• Communication skills: to be acquired by Research Method in Sport and Health II, Research Method in Sport and Health III, Seminar in Sport Promotion I, Seminar in Sport Promotion II, Practice of Sport Promotion and Conference Presentation etc.</li><li>• Teamwork competences: to be acquired by Methodology of Sport and Health Promotion, Seminar in Sport Promotion I, Seminar in Sport Promotion II and Practice of Sport Promotion.</li></ul>
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	<ul style="list-style-type: none"> <li>•Competence in Internationality: to be acquired by Topics of Sport Promotion, Topics of Sport Event, Topics of Health Promotion, Topics of Community Sport Promotion and Introduction to Human Care Science.</li> <li>•Research ability: Research Methods in Sport and Health I, II, III, Topics of Sport Promotion and Seminar in Sport Promotion I, II.</li> <li>•Specialized knowledge: to be acquired by Introduction to Sport and Health Promotion, Methodology of Sport and Health Promotion, Topics of Sport Promotion and Seminar in Sport Promotion I, II, Method in Use of Generative AI in Sport Wellness, Evidence-Based High Performance Support Strategies.</li> <li>•Ethical view: to be acquired by Introduction to Sport and Health Promotion, Methodology of Sport and Health Promotion and learning in eAPRIN. Furthermore, centering on students' majors, in order to contribute to cultivating basic knowledge and wide view, generic competences in relevant areas, it shall be recommended to take one credit from Inter-disciplinary Foundation Courses.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>•In the first year, 3 credits (compulsory) of Introduction and Methodology shall be established in spring term in order to acquire specialized basic ability.</li> <li>•During the first and second year, in order to acquire basic ability of relevant areas, basic ability for promotion practice, presentation/communication skills, in the area of Sport Health Promotion, regarding sport promotion, either of sport promotion area or sport management area shall be selected and in the area of health promotion, either of health promotion or stress management shall be selected. 11 or more credits in total shall be taken mainly from Topics, Seminar, and Practice of Major Subjects of the area selected as mentioned above where students belong and Topics in the neighboring areas. Regarding Major Subjects relating research tasks, 4 or more credits shall be taken from the Major Subjects of other areas.</li> <li>•In the area of Sport Wellness Management, 17 or more credits shall be taken primarily from Major Subjects in the area of Sport Health Promotion and Sport Wellness Management.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>•In each class, the faculty member shall strictly evaluate students' performance.</li> <li>•In the interim presentation of October in the second year, the contents of research presentation shall be peer-reviewed by the participants and evaluated if there are prospects regarding the thesis presented to be completed as the master's degree thesis from the viewpoint of supervisor.</li> <li>•The master's thesis submitted in January shall be comprehensively evaluated by performing through peer-viewing by three examiners as the final evaluation combining with oral examination.</li> </ul>
Admission Policy	
Desired students	The desire students shall have performance in practice and basic knowledge relating to promotion of physical education/sport and mental and physical health promotion, have motivation and interest to enhance research ability through recurrent education base on such performance and knowledge and be able to play an active role in various relevant areas as highly specialized professionals.
Selection policy	Recommendation entrance examination and general examination shall be performed. Allocations of the examination score shall be as follows: regarding the recommendation entrance examination, 50 points for document screening, 50 points for oral examination and regarding general examination, 30 points for document screening, 30 points for examination of specialized subject and 40 points of oral examination. The applicants shall be judged by the total points as mentioned above.

## Master's Program in Art

Name of the degree to be conferred	Master of Science in Art
Educational purpose	Through theoretical studies and professional practice related to art and design from a wide range of perspectives, develop highly skilled professionals and researchers who play leading roles in a globalized society to meet today's diverse development of art and design by applying advanced skills, practical approach, and planning capabilities.
Vision of human resources development	Individuals with advanced knowledge, skills, and expressive abilities in art and design, as well as applied skills and planning capabilities, who contribute to society through creative activities in art or design and take on leadership roles in educational institutions, government agencies, and private enterprises.
Diploma Policy	
The degree of Master of Science in Art is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Creativity: Creative to promote novel and valuable research in the field of art and design	Whether to have expert knowledge and advanced skills in art or design as the basis for excellent research and creative expression
7. Comprehension: Capable to understand the significance and role of art and design and to identify problems and evaluate their solutions.	Whether to demonstrate a deep understanding of the significance and role of art and design, as well as the ability to identify problems based on broader knowledge and experiences
8. Problem-solving capability: Capable to identify and solve challenges in the field of art and design by means of appropriate methods	① Whether to have broader knowledge and experiences in art and design and problem-solving skills based on logical thinking ② Whether to have sound, high sense of research ethics, ethical awareness of the rights of artists, designers, and others in professional practice, and the ability to solve problems related to art or design?
9. Insightfulness: Capable to foresee research developments that contribute to the advancement of arts and culture	① Capable to actively present research results? ② Capable to work with a diverse group of people and have broader perspectives and the energy to act as an international leader?

## Dissertation evaluation criteria

Master's dissertations or research outcomes on a specific subject are subject to evaluation under the following criteria. Students are subject to submit either < a > < b >, or < c >.

### < a > Thesis

1. The significance and purpose of the research are clearly indicated and the method taken is appropriate.
2. The conclusions may contribute to the development of the field.
3. Logically clear, based on preceding.

### < b > Work and thesis

#### (Work)

1. The theme, intent and method of production are clear and original.
2. High level of perfection and may contribute to the development of the field.

#### (Thesis)

1. The significance and purpose of the research are clearly indicated and the method taken is appropriate.
2. The conclusions may contribute to the development of the field.
3. Logically clear, based on prior research.

### < c > Work and research report

#### (Work)

1. The theme, intent and method of production are clear and original.
2. High level of perfection and may contribute to the development of the field.

#### (Research report)

1. The content of the research is highly relevant to the work.
2. The significance and purpose of the research are clearly indicated and the method taken is appropriate.
3. The points and conclusions are sufficiently valid.

## 【Examination System and Examination Method】

The Master's Dissertation Review Committee, consisting of one primary examiner and two or more secondary examiners, shall be established, and an oral examination on the relevant research and related fields shall be conducted as a final examination to determine whether the standards of the above items are satisfied.

## Curriculum Policy

The Master's Program in Art comprises 12 fields, including Art History, Art Environment Support, Western-style Painting, Japanese-style Painting, Printmaking, Sculpture, Sho-Calligraphy, Art and Design Science, Plastic Art and Mixed Media, Craft, Visual Communication Design, and Environmental Design. Under an educational policy that leverages the unique characteristics of each field, the program encourages interdisciplinary and cross-sectoral study and research. It aims to cultivate broad-ranging capabilities while fostering high-level expertise, expressive skills, and rich academic knowledge, ultimately developing the professional and practical skills necessary for research activities in the Doctoral Program.

Curriculum organization policy	<ul style="list-style-type: none"><li>• "General Foundation Subjects" allow students to acquire basic knowledge and logical thinking skills in all aspects of art and design.</li><li>• "Major Subjects" enable students to acquire research skills and creative expressive abilities corresponding to the expertise of each field.</li><li>• "Special Seminars and Workshops: Presentation and Exhibition I and II" provides opportunities to present the results of classes and research to develop the ability to deliver presentations and to objectively analyze their own research.</li><li>• "Core Seminar" allows students to acquire the ability to carry out research in each expert field that will lead to their master's thesis studies.</li><li>• "Core Research" allows students to acquire the ability to carry out master's thesis studies in their expert fields.</li></ul>
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Learning methods · Processes	<ul style="list-style-type: none"> <li>• In the 1st year, the "research trend survey sheet" must be submitted. Accordingly, the primary and secondary academic advisors shall be decided according to the content of the research.</li> <li>• In the mid-term and end of each semester, an "art exhibition," "work review," and "paper presentation" will be held to confirm and evaluate research status. (Special Seminars and Workshops: Presentation and Exhibition I)</li> <li>• In the 2nd year, students are to submit a "Master's dissertation proposal form" and a "Master's dissertation title (finalized) form" for their final research, and their primary and secondary advisors shall give guidance accordingly.</li> <li>• In the middle of each semester and at the end of the semester, "art exhibition", "work review", "paper presentation" will be held to confirm and evaluate the status of research. (Special Seminars and Workshops: Presentation and Exhibition II)</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• In the first and second years, the student will have a "work review" and a "research meeting" on his or her dissertation work in the mid-term and at the end of the semester to confirm the academic achievement.</li> <li>• Master's dissertation shall be submitted in the second year. After acceptance, a "Dissertation Review Implementation Committee" (nomination of candidates for primary and secondary examiners, confirmation of acceptance or rejection) and a "Master's Dissertation Review Committee" (dissertation review and oral examination) are established to evaluate the dissertation.</li> <li>• The final work will be shown in the "Master's Program in Art Degree Exhibition" and the dissertation in "Presentation of the final dissertation".</li> </ul>
Admission Policy	
Desired students	Highly motivated students who have basic knowledge, skills, and a high level of interest in art and design, and are willing to take the initiative in solving various problems in response to the diversified and sophisticated demands of art in modern society
Selection policy	<ul style="list-style-type: none"> <li>• Examinations are conducted in relation of expert areas and to evaluate the ability to think, express, and envision according to the characteristics of the field.</li> <li>• Applicants will be selected based on a comprehensive assessment of their abilities in expert fields, language proficiency and willingness to study.</li> </ul>



## Master's Program in Design

Name of the degree to be conferred	Master of Design
Educational purpose	The goal of this program is to train advanced professionals with the qualities of an international top leader who can master the practical skills to create products and environments that improve the state of people's minds and hearts, to create social systems that create connections between people and make them brighter and more fulfilling, and who can utilize their creativity to nurture and sustain an affluent and constructive community and society.
Vision of human resources development	Students who have the will to propose solutions to problems that transcend regional and cultural barriers through cross-sectional, practical, and international studies, who have the tenacity to produce results, and who have the ability to judge (task extraction capability), the ability to break through (planning ability and logical persuasiveness), and the ability to complete duties based on their expertise.

### Diploma Policy

The degree of Master of Design is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Conceptual and expressive skills: problem identification (discernment) and planning skills	Has the student mastered the ability to plan and express research and production using problem identification skills, while also being familiar with specialized issues?
7. Analysis: Expert problem analysis to solve problems from a broad perspective	Has the student acquired the ability to analyze specialized problems in order to carry out excellent research in their field of specialization? Has the student acquired the ability to analyze comprehensive design issues from a wide range of fields?
8. Solvency: Ability to create new solutions and propose outcomes to society and academia, backed by expertise	Has the student acquired problem-solving (task completion) and breakthrough (planning) abilities through internships and practical exercises.

## Dissertation evaluation criteria

The purpose of this course is to evaluate students' ability to analyze and apply design issues and their ability to solve complex problems from an interdisciplinary perspective, while fulfilling the courses prescribed in the Graduate School Rules of the University of Tsukuba. Applicants will be evaluated based on one of the following a. b. criteria, and the final examination by the dissertation review committee based on each of the following criteria.

The Doctoral Dissertation review committee will consist of one primary examiner and two or more secondary examiners, and reviews are conducted through oral examination.

### a. Paper

1. The ability to think and analyze based on interdisciplinary knowledge of design and the ability to apply it to society.
2. Expertise in design and analytical techniques with a recognized ability to promote interdisciplinary applied research.
3. Recognized ability to apply design and manufacturing in domestic and international social settings, based on an academic background in design studies.

### b. Works and research reports

#### (Works)

1. The problem-setting, production methods, and means of realization are clear and original.
2. It has a high degree of completeness and can contribute to the development of the field.

#### (Research reports)

1. The content of the research must be found to be relevant to the work.
2. The student must have specialized knowledge and analytical skills in design and the ability to promote interdisciplinary work.
3. Academic knowledge of design and the ability to apply it to design and manufacturing in domestic and international settings.

## Curriculum Policy

The Master's Program in Design provides students with the ability to tackle problems from a broader perspective by combining specialized problem identification skills (discernment), specialized fields and integrated methodologies in order to research and design for a variety of industrial and social issues such as products, planning, entertainment, composition, architecture, and spatial planning as a system. The course fosters mission completion, logical persuasion, and international communication and proposal skills. Specifically, in addition to the various fields of design, including composition, sensitivity science, and visual psychology, faculty members from related fields such as systems information technology, environmental engineering, physiology, ergonomics, and disability science will provide cross-disciplinary and practical training courses.

Curriculum organization policy	<ul style="list-style-type: none"><li>• Students acquire knowledge and logical thinking skills ranging from basic design theory to application and practice through General Foundation Subjects.</li><li>• Interdisciplinary knowledge and broad knowledge are acquired through the Graduate General Education Courses and the Inter-disciplinary Foundation Courses.</li><li>• Students acquire a wide range of design theory and research and development methods that support its application through Major Subjects across disciplines.</li><li>• Through project exercises, students will acquire problem identification, planning and presentation skills that correspond to the implementation of the design.</li><li>• Through internships, etc. students acquire the ability to identify practical issues, as well as planning and persuasion skills.</li><li>• Through overseas training, etc., students acquire international negotiation and networking skills to succeed in design, layout, and planning.</li><li>• Students acquire comprehensive planning ability and task completion ability through special design study exercises.</li></ul>
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Learning methods · Processes	<ul style="list-style-type: none"> <li>• In the first year, students will submit a "notice of research plan", and the primary and secondary academic advisors will be decided according to the content of the research.</li> <li>• In addition to General Foundation Subjects and Major Subjects offered every other year, students will take Graduate General Education Courses and Inter-disciplinary Foundation Courses.</li> <li>• Students will undertake systematic project seminars, internships, and overseas training to deepen research.</li> <li>• In the second year, students receive research guidance through biennial Major Subjects and special exercises in design.</li> <li>• (2) In the fall semester (end of December), final research (articles or works (including projects) and reports) is submitted and reviewed, and the final achievement level is reviewed.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• At the end of the fall semester of the first year, all research advisors will review the level of achievement in the first stage and evaluate the academic progress.</li> <li>• In the second semester, the second stage achievement test and the mid-term evaluation of completed research will be held from the end of the spring semester to before the autumn semester.</li> <li>• At the end of the second year, a public presentation of the completed research (dissertation or work (including projects)) and a review of the completed research by a dissertation review committee consisting of a primary examiner and 2 or more secondary examiners will be held, along with the final achievement examination.</li> </ul>
Admission Policy	
Desired students	We seek individuals who have talents and are willing to propose solutions to problems that transcend regional and cultural barriers, and individuals who are willing to constantly challenge themselves to create new solutions and develop the tenacity to produce results.
Selection policy	<p>Through general selection process, special selection process for self-recommended applicants, and special selection process for overseas residents, those who excel in expressive skills in design and in various research and educational fields related to design will be selected.</p> <ul style="list-style-type: none"> <li>• In general selection process, professional aptitude is evaluated through written and oral examinations, and fundamental research capabilities are evaluated based on application document screening.</li> <li>• In special selection process for self-recommended applicants and special selection process for overseas residents, professional aptitude and fundamental research capabilities are comprehensively evaluated by application document screening and oral examination.</li> </ul>

## Master's Program in Heritage Studies

Name of the degree to be conferred	Master of Heritage Studies
Educational purpose	The purpose of this course is to provide students with a comprehensive understanding of the problems facing the world's cultural and natural heritage from various aspects such as politics, economics, society, and the natural environment, and to acquire the theories and techniques for solving issues for their protection, and to train highly specialized professionals who can contribute to the protection of cultural and natural heritage at home and abroad, as well as world heritage sites based on the World Heritage Convention.
Vision of human resources development	To develop students capable of comprehensively understanding theories for the protection and evaluation of cultural and natural heritage, technologies for the management and restoration of cultural and natural heritage, and the locations of problems faced by cultural and natural heritage, and accurately defining and solving problems in relation to the goals of the international community, as well as to develop students with the communication skills to negotiate freely with stakeholders in a wide range of areas of general society for the protection of cultural and natural heritage.

### Diploma Policy

The degree of Master of Heritage Studies is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Ability to use shared knowledge: The ability to make use of common knowledge of cultural and natural heritage conservation for the benefit of society.	Does the student intend to use their broad knowledge of the conservation of cultural and natural heritage for the benefit of society?
7. Ability to utilize specialized knowledge: The ability to make use of advanced knowledge of cultural and natural heritage for the benefit of society.	Does the student intend to use their expertise in preserving cultural and natural heritage for the benefit of society?

8. Ability to use common skills: The ability to address common cultural and natural heritage issues.	Can the student tackle the problem from a broad perspective in order to preserve cultural and natural heritage?
9. Ability to utilize expertise: The ability to address specialized cultural and natural heritage protection issues.	Can the student use their professional skills to solve problems for the preservation of cultural and natural heritage?
10. International practical ability: Awareness of protecting cultural and natural heritage from an international perspective	Has the student acquired the will and language skills to contribute to the international community for the preservation of cultural and natural heritage?

#### Dissertation evaluation criteria

##### (Master's Dissertation Review)

1. The master's dissertation review expert committee shall be composed of one primary and two secondary examiners. Two of the three will be full-time faculty members of the World Heritage Degree Program.
2. Individual reviews will be conducted privately with the attendance of all the examiners of the master's dissertation review committee. However, when it is necessary for other teachers, etc. to participate, the handling of such matters shall be determined through consultation between the primary and secondary examiners. Individual reviews shall normally be conducted once, but when necessary, multiple individual reviews may be conducted through discussions between primary and secondary examiners. In the individual examination, a pass or fail decision is made based on the agreement of all examiners.
3. At the open review, all degree program faculty members will review the students based on the results of the individual reviews, and a decision on acceptance or rejection will be made at the full-time faculty meeting. The treatment of students who are absent from the open examination due to illness or other unavoidable circumstances will be discussed at the full-time faculty meeting.

##### (Evaluation criteria)

1. Appropriate theme for a master's dissertation in World Heritage Studies (problem and issue setting)
2. Clear positioning of the paper based on prior research (research positioning)
3. Research methods appropriate to the subject are selected and the grounds for the selection are credible (Reliability of research methods and arguments).
4. The argument has been sufficiently developed and there is no major contradiction overall (Structure of the paper)
5. No ethical issues in the conduct of the study and the publication of the results (ethics)

##### (Evaluation items)

1. Originality: Novelty of either the concepts and methods introduced or the facts and laws discovered. Includes improvement of a known method, application from a different field, etc.
2. Budding potential: Research that is at the beginning of the research process, but is based on new ideas and concepts and has great potential for future development.
3. Inventiveness: It can clarify new facts that may change conventional theories, or to develop new research areas, research and technology systems.
4. Usefulness: Can provide useful information that is useful for improving technology or for practical or academic purposes.

#### Curriculum Policy

Establish practical and interdisciplinary courses to acquire a wide range of knowledge and expertise in the preservation and restoration of not only world heritage but also cultural properties, the preservation of cultural and natural heritage, and the planning and management of heritage sites.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The curriculum will be organized so that all graduate students can take compulsory subjects and elective subjects to acquire specialized skills.</li> <li>• The elective subjects will be divided into three categories: International Heritage, Assessment and Preservation of Heritage, and Management and Planning of Heritage, and consideration will be given so that credits can be acquired in a balanced manner according to the expertise of graduate students.</li> </ul>
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Learning methods • Processes	<ul style="list-style-type: none"> <li>• In the first year, students present their research plan in the required subject "World Heritage Studies" and summarize their research plan at the end of the first year with guidance from their supervisor in the required subject "Special Seminar on World Heritage Studies."</li> <li>• From the first year to the second year, graduate students will take courses and exercises tailored to their specialty from among the elective subjects in the fields of International Heritage, Heritage Evaluation and Preservation, and Heritage Management and Planning.</li> <li>• In the second year, master's research will be presented in the required subject "Special Research for World Heritage Studies " under the guidance of an academic advisor, and the Master's dissertation will be finalized with the advice of faculty in other fields.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• At the end of the fall semester of the first year, research plans will be announced in front of the entire faculty and academic progress will be reviewed.</li> <li>• In the fall semester of the second year, the student will make a midterm presentation of their master's research and proceed with the writing of their master's dissertation. After the master's dissertation is submitted, it is reviewed by a dissertation review committee consisting of one primary and two secondary examiners, and a public presentation is made.</li> </ul>
Admission Policy	
Desired students	We seek students who have a broad interest in the protection, management, and utilization of World Heritage sites, as well as international cooperation in the exchange and inheritance of diverse cultures, efforts to protect the global environment, including biodiversity, and regional development efforts, including tourism, and who have the academic skills and qualifications necessary for research activities.
Selection policy	The selection of entrants will be conducted based on a foreign language (English) score submitted and oral examination to comprehensively evaluate language skills, basic professional knowledge, and research ability which are necessary for Heritage Studies.



## Master's Program in Informatics

Name of the degree to be conferred	Master of Science in Informatics
Educational purpose	Information has played an important role in human activities, but its importance has rapidly increased with recent technological advances. In order to respond to such situations, the Master's Program in Informatics (doctor first semester course) will train personnel engaged in specialized work to utilize information for academic purposes, education, daily life, culture, etc., through an interdisciplinary approach that combines humanities and sciences.
Vision of human resources development	<p>A person who understands human and information-related issues and has the expertise and skills to carry out tasks</p> <ul style="list-style-type: none"> <li>• The ability to use the latest information technology to analyze data, develop systems and produce media</li> <li>• A person who can propose the best information environment for the community based on the interaction between humans and information</li> <li>• A person who understands the diversity of history and culture, and is able to share and pass on knowledge and information resources</li> </ul>

### Diploma Policy

The degree of Master of Science in Informatics is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	<p>① Can you apply knowledge gained through research and other activities in society?</p> <p>② Can you identify new problems, even in other fields of expertise, based on broad knowledge?</p>
2. Management competence: Ability to appropriately address challenges from broad standpoints	<p>① Can you take on major tasks with systematic planning?</p> <p>② Can you understand and solve problems from multiple perspectives?</p>
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	<p>① Are you capable of efficient communication for research purposes?</p> <p>② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?</p>
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	<p>① Do you have experience cooperatively and actively working on challenges as part of a team?</p> <p>② Have you helped promote projects and activities other than your own research?</p>
5. Internationality competence: Willingness to contribute to international society	<p>① Are you aware of making contributions to international society and getting involved in international activities?</p> <p>② Have you obtained the linguistic skills necessary for international information collection and action?</p>
6. Qualitative research competence: the ability to analyze data semantically using appropriate methods.	<p>① Can the student obtain data for research and select appropriate methods for semantic analysis</p> <p>② Can the student get a reasonable interpretation from the results of the analysis, depending on the purpose?</p>
7. Quantitative research competence: The ability to analyze data mathematically using appropriate methods.	<p>① Can the student obtain data for research and select appropriate methods for mathematical analysis</p> <p>② Can the student get a reasonable interpretation from the results of the analysis, depending on the purpose?</p>
8. Media Expertise: Expertise in developing new media with an awareness of its application to social systems.	<p>① Can the student explain the impact of media and network technologies on society?</p> <p>② Can the student develop media based on information design and its impact on society?</p>

9. Systems Expertise: Expertise in designing systems that analyze multiple aspects of human-information interaction	① Can the student build a computational model of human information behavior ② Can the student propose a new service system based on human-information interaction?
10. Resource Expertise: Expertise in understanding historical and cultural diversity through materials and building a knowledge resource base	① Can the student understand the diversity of history and culture and envision the future of information resources? ② Can the student understand the various issues of information distribution and evaluate information management and information services?
11. Information Ethics: Ethics and normative awareness of information	① Does the student have accurate knowledge of intellectual property rights and the ability to make appropriate judgments? ② Can the student act in a normative manner when it comes to the handling of information?

#### Dissertation evaluation criteria

Dissertation submitted for a degree for which all of the following evaluation items are deemed appropriate or have been achieved will be accepted as a master's dissertation upon completion of the final examination.

1. Significance of the research theme
2. Grasping and understanding of prior research
3. Validity of the research method
4. Conclusions and the validity of the logic leading to them
5. Adequacy of style and organization
6. Appropriate citation of documents and materials

The method of dissertation examination shall be as follows.

Dissertation reviews are conducted by the Dissertation review committee, which is established for each dissertation, after comprehensively judging the content of the dissertation, the presentation of the dissertation in public, and the final examination.

- 1) The Dissertation review committee consists of one primary examiner and two or more secondary examiners.
- 2) The public presentation will take about 30 minutes including questions and answers.
- 3) Final examinations shall be conducted by oral or written means, mainly on the dissertation and related fields. However, an open dissertation presentation may be substituted for an oral examination, and if necessary further oral or written examinations will be given.

#### Curriculum Policy

To train individuals who will be involved in specialized work to utilize information for academic, educational, lifestyle and cultural activities through an interdisciplinary approach that integrates the humanities and sciences, students will acquire general and specialized knowledge and abilities as outlined in the diploma policy. General knowledge and ability will be acquired mainly through Graduate General Education Courses, Inter-disciplinary Foundation courses, degree programs' common courses and compulsory seminar subjects, and specialized knowledge will be acquired mainly through elective lecture subjects. In addition to the Japanese curriculum for new students entering the spring semester, an English curriculum for new students entering the autumn semester, and a curriculum for adults attending mainly at the Tokyo Campus will be created in an integrated manner.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The curriculum consists of Graduate General Education Courses, Inter-disciplinary Foundation Courses, and the Degree Programs' Common Courses, as well as Media Science Specialized Courses, Information Interaction Specialized Courses, Library and Information Science Specialized Courses, and the Methodological Foundation Courses, the Research Practice Courses, and the Research Seminar Courses all of which are unique to this degree program.</li> <li>• Students will acquire general knowledge and abilities such as knowledge utilization, Management competence, Communication competence, Teamwork competence, and Competence in Internationality through the Graduate General Education Courses, the Inter-disciplinary Foundation Courses, and the Degree Programs' Common Courses.</li> </ul>
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	<ul style="list-style-type: none"> <li>• The Specialized Courses in Media Science (lecture subject) provide students with the ability to read the nature of data, select appropriate methods for their purposes, and analyze the data. They also acquire the ability to develop new media with an awareness of its application to information and social systems.</li> <li>• The Special Courses on Information Interaction (lecture subject) teaches students the ability to analyze multifaceted interactions between human intellect and computer input/output and the ability to design information services and various Web services.</li> <li>• The Special Courses in Library and Information Science (lecture subject) provide students with the ability to understand the meaning of historical and cultural materials, foster an understanding of society, foster a new society, and design information services for libraries, archives, museums, and a variety of Web services.</li> <li>• The Methodological Foundation Courses group (practice subject) consists of Research Foundation, Literature Survey, Surveys and Data Analysis, and the Research Practice Courses group (practice subject) consists of Research Design, Job Design, Content Production and Development, Records and Information Management, MDA-related courses, and students acquire the basic research skills required to carry out research in a practical manner.</li> <li>• The Group of Research Seminar Courses (practice subject) consists of the Special Seminar in Informatics. Students will acquire research ability through the practice of research in the theory and application of data utilization utilizing the characteristics of the media, the theory and application of information utilization focusing on communication, and the theory and application of management of knowledge resources as a social infrastructure.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Lecture courses include a minimum of 12 credits from s Major Subjects groups and up to 8 credits from Graduate General Education Courses, Inter-disciplinary Foundation Courses, Degree Programs' Common Courses, and lecture courses of other graduate schools or degree programs of the University.</li> <li>• Seminar subjects include 6 credits from Methodological Foundation Courses and Research Practice Courses and 4 credits from Research Seminar Courses.</li> </ul> <p>In principle, students will solidify their basic research skills by taking basic methodological subjects in their first year, and acquire research execution skills based on their basic research skills by taking Research Seminar Courses in their first and second year.</p> <ul style="list-style-type: none"> <li>• Regardless of the entrance examination category and the instructional language, the prescribed credits may be included in the completion requirements.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Each subject is evaluated according to the evaluation method described in the syllabus.</li> <li>• Possession of general and specialized knowledge and abilities will be confirmed by the expert committee each year based on course mastery and activities, including papers and conference presentations.</li> <li>• Midterm presentations will be assessed on the basis of research content, research methods, and presentation skills.</li> <li>• Dissertation reviews shall be conducted by the Dissertation review committee, which is established on a case-by-case basis for each dissertation accepted.</li> <li>• Final examinations shall be conducted by oral or written means, mainly on the dissertation and related fields. However, a public dissertation presentation may be substituted for the oral examination.</li> </ul>
Admission Policy	
Desired students	<ul style="list-style-type: none"> <li>• Individuals who have a deep interest in the use of information and strive to take an interdisciplinary approach to the formulation and resolution of problems.</li> <li>• Individuals who have basic knowledge of informatics or related fields and who have communication skills, presentation skills, and language skills.</li> </ul>
Selection policy	<p>Selection will be based on a comprehensive evaluation of English language scores and oral examination results. The English language test may be waived for applicants who are applying through the Special Selection Process for Recommended Applicants and the Special Selection Process for Working Individuals. Video conferencing tools will be used for the oral examination for applicants who are applying through the Special Selection Process of Global Individuals in English and entering the program in October.</p>

## Master's Program in Life Science Innovation (Disease Mechanism)

Name of the degree to be conferred	Master of Disease Mechanism
Educational purpose	The Master's Program in Life Science Innovation cultivates highly specialized professionals who possess the world's top-class advanced specialized research ability with cross-disciplinary mind from a higher perspective, open up a new strides in life science research using bioresources, and are globally active in the areas of research and development of innovative pharmaceutical products and functional foods and in the areas of their maintenance and administration.
Vision of human resources development	As Japan's population ages and the birthrate declines, there is an urgent need to understand the pathological mechanisms of these diseases. It is expected that we will not only develop innovative treatments for diseases, but also stimulate the economy by creating solutions to the problems of an aging society with declining birthrates before the rest of the world. The area of disease mechanism fosters "individuals with the basic skills for doctoral dissertation research to become outstanding basic medical researchers who pioneer innovative knowledge in the field of biomedical sciences, while keeping in mind the need to give back to society the fruits of their research, and highly skilled professionals with a wide range of knowledge who are active in a variety of medical fields."
Diploma Policy	
The degree of Master of Disease Mechanism is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Innovation ability: Ability to open up new developments in the areas of life science	① If the basic concepts about the areas of life science were widely gained and problems are interpreted from a higher perspective ② If one has the motivation to gain new skills and knowledge instead of being bound by one's area of expertise ③ If the social needs in the areas of life science are understood ④ If appropriate research plans are drawn up and carried out to solve Pathophysiology issues

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| 7. Specialized knowledge: Advanced knowledge and command of an area of expertise                     | ① If leading-edge specialized knowledge about Pathophysiology was gained<br>② If gained knowledge was put to use to solve issues   |
| 8. Advanced practical English: Practical English proficiency that works in the areas of life science | ① If an accurate description of one's understandings or opinions about problems in the areas of life science is provided in English<br>② If written research proposals, reports, etc. are created in English |

#### Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree thesis must be the results of work in which the diploma applicant took the initiative and must contain unprecedented research findings that contribute to make strides in the areas of Pathological mechanism field. The degree thesis must be written logically and scientifically and must be constructed in an appropriate format as a degree thesis.

【Review board members】 A thesis is reviewed by an exclusive board formed by one chief reviewer and two or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the two or more sub-reviewers, one or more faculty members qualified to supervise the research in the Program must be included. The three or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the three or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain their degree thesis content and then questioned by exclusive board members about what they have explained. During this examination, in which the applicant is required to make a presentation about their degree thesis logically and scientifically, the applicant is evaluated to see if they can convince the reviewers sufficiently by answering the reviewers' questions using the specialized knowledge of the areas of Pathophysiology with insight.

#### Curriculum Policy

Under the education and research environment where there is the active participation by not only the faculty members of Tsukuba but also by collaborative graduate school faculty members from the research institutes or such which belong to the Tsukuba Life Science Promotion Association, students learn about unsolved issues of the society and get engaged in research activities to pursue to open up new strides in the areas of Pathological mechanism field. The Master's Program in Life Science Innovation, whose purpose is to cultivate globally active highly specialized professionals, offers all lectures in English and organizes lectures and seminars taught by researchers who are active in the front lines and belong to overseas research institutes. To cultivate the ability to have the big picture in mind from a cross-disciplinary perspective, students benefit from the General Foundation Subjects which cover all-around basic concepts in the areas of life science. As part of the career training, the curriculum includes internship subjects and other subjects such as for learning the operations of research organizations, etc. Moreover, Major Subjects for cultivating the expert abilities in Pathophysiology are also organized.

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| Curriculum organization policy | <ul style="list-style-type: none"> <li>• The curriculum of the Department of Disease Mechanism consists of Major Subjects, General Foundation Subjects common to all six fields of the degree program (Disease Mechanism, Drug Discovery and Development, Food Innovation, Environmental Control, Bioinformatics, and Biomaterials), and common subjects for graduate students. In addition to the lectures in the Major Subjects, students receive research guidance on pathological mechanisms in the laboratories to which they belong.</li> <li>• Competence of knowledge application is gained with master's thesis creation, etc.</li> <li>• Management competence is gained with "Regulatory Science", etc.</li> <li>• Communication competence is gained with "Master's Research in Life Science Innovation", etc.</li> <li>• Teamwork competence is gained with "Team Learning in Life Science Innovation (Basic)", etc.</li> <li>• Competence in Internationality is gained with "Master's Life Science Innovation Seminar", etc.</li> <li>• Innovation ability is gained with Major Subjects, "Master's Research in Life Science Innovation", etc.</li> <li>• Specialized knowledge is gained with Major Subjects, etc.</li> <li>• Advanced practical English is gained with General Foundation Subjects, Major Subjects, etc.</li> </ul> |
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Learning methods • Processes	<ul style="list-style-type: none"> <li>• After learning how to gather information and understanding social needs under the supervision of supervisory faculty members, students draw up and carry out an appropriate research plan for solving Pathophysiology issues and round up the results into research outcomes.</li> <li>• Students acquire English presentation skills in the process of presenting their research outcomes at the T-LSI student workshop and other events.</li> <li>• Through General Foundation Subjects and Graduate General Education Courses, students widely gain the basic concepts in the areas of life science and improve communication ability in English in order to be capable of using knowledge not bound by one's area of expertise.</li> <li>• Practical abilities as working individuals are cultivated through internships.</li> <li>• Specialized knowledge is gained through Major Subjects.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the interim evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for master's thesis creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Four months before the expected completion of the Program, the final evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the final exam which is administered two months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and two sub-reviewers based on the presentation and question-and-answer session for the doctoral master's thesis content.</li> <li>• At the final exam which is administered three months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and three sub-reviewers based on the presentation and question-and-answer session for the dissertation content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who possess the motivation to make innovations in the areas of Pathophysiology and have the sufficient qualities to gain the specialized knowledge necessary to attain such innovations, and advanced practical English.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess bachelor's degree level knowledge necessary for learning in the Master's Program in Life Science Innovation and the ability to write about research backgrounds and future prospects in English.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for learning in the Master's Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation to make innovations in the areas of Pathological mechanism field and the ability to explain and debate in English.</li> </ul>



## Master's Program in Life Science Innovation (Drug Discovery)

Name of the degree to be conferred	Master of Medical Science
Educational purpose	The Master's Program in Life Science Innovation cultivates highly specialized professionals who possess the world's top-class advanced specialized research ability with cross-disciplinary mind from a higher perspective, open up a new strides in life science research using bioresources, and are globally active in the areas of research and development of innovative pharmaceutical products and functional foods and in the areas of their maintenance and administration.
Vision of human resources development	Innovative medicines that solve unmet medical needs are required to meet the needs of society. In the field of drug discovery and development, the student should be able to "grasp the trends of medical needs in response to the times, acquire the ability to design drugs and verify the effects of drugs through regulatory science, organic chemistry, medicinal chemistry, and pharmacology, and have the basic skills for doctoral research in order to contribute to the creation of innovative drugs. and highly skilled professionals".

### Diploma Policy

The degree of Master of Medical Science is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	① Can you apply knowledge gained through research and other activities in society? ② Can you identify new problems, even in other fields of expertise, based on broad knowledge?
2. Management competence: Ability to appropriately address challenges from broad standpoints	① Can you take on major tasks with systematic planning? ② Can you understand and solve problems from multiple perspectives?
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	① Are you capable of efficient communication for research purposes? ② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	① Do you have experience cooperatively and actively working on challenges as part of a team? ② Have you helped promote projects and activities other than your own research?
5. Internationality competence: Willingness to contribute to international society	① Are you aware of making contributions to international society and getting involved in international activities? ② Have you obtained the linguistic skills necessary for international information collection and action?
6. Innovation ability: Ability to open up new developments in the areas of life science	① If the basic concepts about the areas of life science were widely gained and problems are interpreted from a higher perspective ② If one has the motivation to gain new skills and knowledge instead of being bound by one's area of expertise ③ If the social needs in the areas of life science are understood ④ If appropriate research plans are drawn up and carried out to solve Drug discovery development studies issues
7. Specialized knowledge: Advanced knowledge and command of an area of expertise	① If leading-edge specialized knowledge about Drug discovery development studies was gained ② If gained knowledge was put to use to solve issues

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8. Advanced practical English: Practical English proficiency that works in the areas of life science
- ① If an accurate description of one's understandings or opinions about problems in the areas of life science is provided in English
  - ② If written research proposals, reports, etc. are created in English
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#### Dissertation evaluation criteria

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【Level standards required for the degree thesis】 The degree thesis must be the results of work in which the diploma applicant took the initiative and must contain unprecedented research findings that contribute to make strides in the areas of Drug discovery development field. The degree thesis must be written logically and scientifically and must be constructed in an appropriate format as a degree thesis.

【Review board members】 A thesis is reviewed by an exclusive board formed by one chief reviewer and two or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the two or more sub-reviewers, one or more faculty members qualified to supervise the research in the Program must be included. The three or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the three or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain their degree thesis content and then questioned by exclusive board members about what they have explained. During this examination, in which the applicant is required to make a presentation about their degree thesis logically and scientifically, the applicant is evaluated to see if they can convince the reviewers sufficiently by answering the reviewers' questions using the specialized knowledge of the areas of Drug discovery development field with insight.

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#### Curriculum Policy

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Under the education and research environment where there is the active participation by not only the faculty members of Tsukuba but also by collaborative graduate school faculty members from the research institutes or such which belong to the Tsukuba Life Science Promotion Association, students learn about unsolved issues of the society and get engaged in research activities to pursue to open up new strides in the areas of Drug discovery development field. The Master's Program in Life Science Innovation, whose purpose is to cultivate globally active highly specialized professionals, offers all lectures in English and organizes lectures and seminars taught by researchers who are active in the front lines and belong to overseas research institutes. To cultivate the ability to have the big picture in mind from a cross-disciplinary perspective, students benefit from the General Foundation Subjects which cover all-around basic concepts in the areas of life science. As part of the career training, the curriculum includes internship subjects and other subjects such as for learning the operations of research organizations, etc. Moreover, Major Subjects for cultivating the expert abilities in drug discovery development are also organized.

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| Curriculum organization policy | <ul style="list-style-type: none"> <li>• The curriculum of the Drug discovery development area consists of Major Subjects, General Foundation Subjects common to all six fields of the degree program (Disease Mechanism, Drug Discovery and Development, Food Innovation, Environmental Control, Bioinformatics, and Biomaterials), and common subjects for graduate students. In addition to the lectures in the Major Subjects, students receive research guidance on Drug discovery development in the laboratories to which they belong.</li> <li>• Competence of knowledge application is gained with master's thesis creation, etc.</li> <li>• Management competence is gained with "Regulatory Science", etc.</li> <li>• Communication competence is gained with "Master's Research in Life Science Innovation", etc.</li> <li>• Teamwork competence is gained with "Team Learning in Life Science Innovation (Basic)", etc.</li> <li>• Competence in Internationality is gained with "Master's Life Science Innovation Seminar", etc.</li> <li>• Innovation ability is gained with Major Subjects, "Master's Research in Life Science Innovation", etc.</li> <li>• Specialized knowledge is gained with Major Subjects, etc.</li> <li>• Advanced practical English is gained with General Foundation Subjects, Major Subjects, etc.</li> </ul> |
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Learning methods • Processes	<ul style="list-style-type: none"> <li>• After learning how to gather information and understanding social needs under the supervision of supervisory faculty members, students draw up and carry out an appropriate research plan for solving drug discovery development issues and round up the results into research outcomes.</li> <li>• Students acquire English presentation skills in the process of presenting their research outcomes at the T-LSI student workshop and other events.</li> <li>• Through General Foundation Subjects and Graduate General Education Courses, students widely gain the basic concepts in the areas of life science and improve communication ability in English in order to be capable of using knowledge not bound by one's area of expertise.</li> <li>• Practical abilities as working individuals are cultivated through internships.</li> <li>• Specialized knowledge is gained through Major Subjects.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the interim evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for master's thesis creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Four months before the expected completion of the Program, the final evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered four months before the expected completion of the Program, the preliminary review for the master's thesis is conducted by the chief reviewer and two sub-reviewers.</li> <li>• At the final exam which is administered two months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and two sub-reviewers based on the presentation and question-and-answer session for the master's thesis content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who possess the motivation to make innovations in the areas of Drug discovery development field and have the sufficient qualities to gain the specialized knowledge necessary to attain such innovations, and advanced practical English.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess bachelor's degree level knowledge necessary for learning in the Master's Program in Life Science Innovation and the ability to write about research backgrounds and future prospects in English.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for learning in the Master's Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation to make innovations in the areas of Drug discovery and development field and the ability to explain and debate in English.</li> </ul>

## Doctoral Program in Education

Name of the degree to be conferred	Doctor of Philosophy in Education
Educational purpose	The purpose of this program is to investigate both specific issues of education that must be addressed in the face of rapid social change and essential issues of education that must be resolved from a global perspective, based on a wide range of academic knowledge in pedagogy, and to disseminate the results of original research both domestically and internationally, and to foster pedagogical researchers and highly skilled professionals who can lead policy and practice reforms on an international scale.
Vision of human resources development	<ul style="list-style-type: none"> <li>• Graduates of the program will be able to engage in educational research at domestic and foreign educational universities, faculties, and educational research institutes and lead academic activities in their specialized fields. They are also capable of actively disseminating the latest results of educational research at international academic societies and international organizations and engaging in research exchange.</li> <li>• They can contribute to the formulation and implementation of educational policies of national and local governments and related organizations at home and abroad, and to the professional development of school faculty and staff, educational administration, and private organizations, using their research achievements.</li> </ul>

### Diploma Policy

The degree of Doctor of Philosophy in Education is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?

6. Research skills: the ability to set essential research questions based on the latest expertise in the field of education and to carry out research projects independently.	① Can the student set an essential research agenda based on previous research in pedagogy? ② Does the student use research methods appropriate to the tasks set and produce academic research results?
7. Specialized knowledge: Leading-edge and advanced specialized knowledge and command of the field of education	① Is the research output supported by pedagogical expertise in the student's field of study? ② Does the student show willingness to actively seek to absorb expertise in relevant educational sciences
8. Ethical view: Ethical view and ethical knowledge appropriate for researchers in the field of education and deep ethical knowledge about the specific area of expertise	① Does the student have the ethics and ethical knowledge appropriate for a researcher in the field of education? ② Does the student have ethics and ethical aspirations related to their specific field of study?
9. Global-mindedness: the ability to see educational issues from an international perspective and disseminate solutions to domestic and international audiences	① Can the student accurately grasp domestic and international educational issues and set research agendas with an international perspective? ② Is the student actively seeking to disseminate their research results domestically and internationally?

#### Dissertation evaluation criteria

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in field of education is clearly described.
2. If the dissertation contains original research outcomes contributory to make strides in field of education sufficiently enough to be presented as an academic paper.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. If research backgrounds, purposes, methods, results, discussions, conclusions, etc. are organized in a format appropriate as doctoral dissertation in the field of education.

Those who wish to apply for a dissertation review must pass a preliminary examination in the degree program in advance. The dissertation review committee shall consist of three to five members. At least one member of the review committee shall be selected from outside the applicant's degree program (or faculty).

#### Curriculum Policy

The purpose of this program is to increase the research capacity required for research in specialized fields and to familiarize students with research methods, such as graduate students who have acquired specialized knowledge in education before entering the master's program, in-service teacher graduate students who have taught at universities, elementary, junior high, and high schools with a master's degree and engaged in educational research, and those who have enhanced their research interests while working in education administration or private organizations (companies, NPOs, etc.). The curriculum is organized for working graduate students with the aim of improving their research skills and becoming proficient in research methods in their field of specialization. The curricula are organized into Common General Foundation Subjects, Common Elective Subjects, and Major Subjects in order to systematically and effectively acquire the skills set forth in the diploma policy.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Through the common General Foundation Subjects students acquire education in the whole field of basic education and school education, and will be motivated to contribute to the development of educational research.</li> <li>• Through common elective courses, students will acquire the leadership skills necessary to plan and promote joint research, communication skills to facilitate academic discussions with overseas researchers, and the ability to search, read, and accurately examine appropriate literature and materials.</li> <li>• In Major Subjects, students receive guidance from faculty members in specialized fields related to their research themes to deepen their expertise, develop insight into research ethics issues, and acquire a variety of skills to present and discuss their research findings at professional conferences.</li> <li>• By taking these courses and participating in research activities outside the university, students will be able to become independent researchers and acquire the ability to see global educational issues from a broad perspective and consider solutions to them from an international perspective.</li> </ul>
Learning methods • Processes	<p>In the first year, students are required to take common General Foundation Subjects and research methods based on their own research topics to receive guidance in their specialized field of study. In the fall semester of their first year, they learn how to prepare their dissertations with guidance from faculty members outside their field of specialization at a presentation event for submitted papers. In their third year, they receive guidance on their doctoral dissertation from several faculty members under the supervision of a research guidance committee. Because the integration of subject specialization and pedagogy is required, especially in the field of subject pedagogy, students are instructed to actively take courses offered in degree programs established in other academic schools.</p>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Students are assessed on their basic understanding of pedagogy, research methods, and dissertation concepts in individual courses.</li> <li>• In the presentation event for submitted papers, guidance and evaluation will be conducted in accordance with the academic society to which the paper is submitted.</li> <li>• At the doctoral dissertation midterm presentation guidance and evaluation of the doctoral concept will be provided.</li> <li>• The Research Advisory Committee provides guidance and evaluation of the conception, content, and standards of the doctoral dissertation.</li> <li>• The preliminary review board and the dissertation review board will be open to the public and will conduct proper examinations.</li> </ul>
Admission Policy	
Desired students	<p>We seek individuals who are deeply interested in the real and fundamental problems of education, who have acquired basic knowledge of pedagogy and research methods in the master's program, who have a clear research agenda, and who are proactive and ambitious in their research. We seek individuals who have a broad perspective and deep specialized knowledge based on academic knowledge in pedagogy, and who have the ability to play an active role in professional societies at home and abroad in order to solve various educational issues.</p>
Selection policy	<p>Selection will be made twice a year (October and February) under the jurisdiction of the Admission Committee. Selection will be based on an examination of the content of the master's dissertation (or a dissertation in lieu of the master's dissertation) and an oral examination based on the research plan for the degree program. In addition, a special selection process for working adults will be implemented with a fixed number of applicants.</p>



## Doctoral Program in Psychology

Name of the degree to be conferred	Doctor of Philosophy in Psychology
Educational purpose	Psychology is crucial for understanding human beings and the academic area which explores what mind is and clarifies functions of mind and which aims at clarifying the process by which human beings incorporate information from outside world, understand it and finally take proper actions back through brain function to support it. In this course the following persons shall be trained: the human resources who have various and close relationship with adjacent areas including social science area and multidisciplinary which can develop as interdisciplinary research after acquiring such knowledge/metrologies/skills/sense of values of the entire area of psychology and then can contribute to society as experts of human research, that is, the persons who have a solid foundation, a broad view and an awareness of issues as the researcher in psychology area.
Vision of human resources development	People who have acquired a solid point of view as a professional researcher in the field of psychology and have the ability to objectively understand human beings as a whole, understand the diversity and universality of the mind, and understand the interaction between humans and the environment. They are also capable of contributing to society as a professional researcher on the human being, finding problems, solving problems, and communicating information. In particular, the Subprogram in General Psychology aims to cultivate university faculty members, researchers, and highly skilled professionals who, with a broad perspective of the entire field of psychology, are able to deeply acquire methodologies, knowledge, and skills in psychology, widely contribute to society by giving back the results and methodologies of basic research in psychology and contribute to society. In addition, the Subprogram in Clinical Psychology aims to foster university faculty members, researchers, and highly skilled professionals who have the ability to research and creatively develop psychology in a comprehensive and multifaceted manner, as well as the skills for practical application.

### Diploma Policy

The degree of Doctor of Philosophy in Psychology is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?

5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Psychological human understanding: The ability to understand the diversity of the mind and behavior, the person-environment relationship, based on psychological knowledge and methodology	① If capable of understanding (or intending to understand) diversity of human mind and behavior from knowledge and methodology of psychology. ② If capable of understanding (or intending to understand) relationship between human beings and environment from knowledge and methodology of psychology.
7. Psychological problem-solving ability: Ability to discover, understand, and solve mental and behavioral problems based on psychological knowledge, methodologies, and ethics.	① If capable of finding and understanding (or intending to find and understand) the problems of human mind and behavior based on knowledge and methodology of psychology. ② If capable of solving (or intending to solve) the problems of human mind and behavior with psychological specialization and high ethical view.
8. Psychological clinical support skills: The ability to practice and develop clinical psychological support based on psychological knowledge, methodology, and clinical skills	① If capable of putting psychological clinic support for the problems of human mind and behavior with psychological specialization and high ethical view. ② The ability to develop individuals capable of providing clinical psychological support with expertise in psychology and a high level of ethics.
9. Psychological information dissemination skills: The ability to contribute to and lead society by disseminating psychological knowledge, methods and results with high ethical standards	① If capable of disseminate (or intending to disseminate) knowledge/methodology/results of psychology with high ethical view. ② If capable of contributing to (or intending to contribute to ) society with knowledge and methodology of psychology and high ethical view.
10. Multidisciplinary communication skills: the ability to discuss, collaborate, and lead with experts from other disciplines and professions, while demonstrating expertise in psychology.	① If capable of discussing/cooperating (or intending to discuss/cooperate) with experts of other areas/other professional occupations as the experts of psychology. ② If capable of discussing/cooperating (or intending to discuss/cooperate) with experts of other areas/other professional occupations by making use of psychological specialization.

#### Dissertation evaluation criteria

After satisfying the requirements stipulated in the University of Tsukuba's Graduate School Regulations, the dissertation must be judged as acceptable with the following two criteria confirmed by the final examination.

1. The dissertation must contain sufficient new academic knowledge in the field of psychology.
2. The applicant must have the high level of research skills necessary to work as an independent researcher in the field of psychology.

(Evaluation items)

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in psychology is clearly described.
2. Contain a reasonable amount of original research findings that contribute to the advancement of the field of psychology to be published in academic papers.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as doctoral dissertation in the area of psychology. Those who wish to apply for a dissertation review must pass a preliminary examination in their department.

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(Review system)

The Dissertation Examination Committee, which shall be established to review doctoral dissertations, etc., shall consist of one primary examiner and at least three secondary examiners. At least one of the members of the committee shall be selected from outside the faculty members in charge of the degree program.

### Curriculum Policy

In the Program in Psychology, students will deepen their knowledge, methodology, skills, and values across the entire field of psychology in order to question what the mind is as the key to human understanding and clarify the function of the mind, and will develop problem-solving skills that can contribute to society as experts in the human sciences, while maintaining diverse and close relationships with adjacent fields and multidisciplinary research.

Curriculum  
organization policy

The academic objective of this degree program is to promote research activities for the preparation of the dissertation. To this end, we have a special research program in psychology, where students develop a variety of skills through practical research under a team guidance system with multiple supervisors. In addition, in order to develop psychological information dissemination skills and multidisciplinary communication skills, a Subprogram in General Psychology and a Subprogram in Clinical Psychology have been established, and practical courses are established for each field to help develop skills. Through "Current Issues in Psychology" students learn about a wide range of psychological research, and through dissertation research centered on special research in psychology, students develop the ability to discover psychological problems, understand people, and solve psychological problems. These specialized competencies are the foundation for developing knowledge creation skills.

Through the practice of debriefing sessions related to the doctoral dissertation, students acquire the ability to disseminate psychological information and interdisciplinary communication skills. These skills are the foundation for management, communication and teamwork skills.

Students in the Subprogram in General Psychology also acquire psychological information dissemination and communication skills by acting as instructors for bachelor's students through Laboratory Training in Psychology and Practicum on Project Management in Psychology 1. In the Subprogram in General Psychology, students acquire practical psychological clinical skills through practical training courses.

Learning methods ·  
Processes

The dissertation research, which can be regarded as the culmination of the degree program, is the center of the program, and academic opportunities are provided to cultivate the necessary skills. Using a step-by-step implementation of the dissertation research, students write a provisional dissertation and give a concept presentation in their first year. In the second year and thereafter, when all the necessary requirements have been met, students undergo a preliminary dissertation examination, write and submit the full-length dissertation, and take a final oral examination. For this research, the advisor and secondary advisors work in teams to promote research from a wide range of perspectives through a multiple faculty research guidance system.

Evaluation of learning  
outcomes

- In each class, the supervisor shall carry out strict educational evaluation.
- In the first year, the students submit a report in June to evaluate the status of their basic dissertation presentation skills. In addition, a doctoral dissertation concept presentation is held in November to assess the status of the overall research framework.
- At the end of each year, a report on the research progress and a list of research achievements are requested, and the research activities for the year are evaluated. To do so, students will meet with all their supervisors individually and be evaluated from multiple perspectives.
- At the preliminary examination, all faculty members in the program review the results of the research for the dissertation based on their presentations. In principle, the pre-examination meeting can be held in May, October or December of each year.
- After the dissertation is accepted, a dissertation review board is organized to conduct an open oral examination to evaluate the dissertation as a comprehensive evaluation of psychological research and the acquisition of various skills necessary to obtain the degree.

## Admission Policy

Desired students	The Doctoral Program in Psychology recruits individuals who aim to become researchers, university faculty members, or highly qualified professionals in the field of psychology. The program is open not only to students who have recently completed a master's degree program in psychology, but also to those who are already working in a professional capacity related to psychology.
Selection policy	<ul style="list-style-type: none"><li>• In the entrance examination, students will be selected based on the specialized foreign language (English) examination and by oral examination.</li><li>• Special entrance examinations will be held for internal admission from the Master's Program in Psychology to promote the acquisition of a degree (doctorate) for particularly talented individuals.</li></ul>

## Doctoral Program in Disability Sciences

Name of the degree to be conferred	Doctor of Philosophy in Disability Sciences
Educational purpose	This program trains researchers who can conduct advanced research on various topics related to disabilities and provides leading education in the field of disability sciences from a global perspective.
Vision of human resources development	To prepare professionals who can provide expert solutions to problems related to people with disabilities from a scientific perspective. Specifically, graduates will have a broad knowledge of disabilities and be able to contribute to problem-solving, as well as identify research issues from real-world problems and promote research plans and their implementation with collaborators to solve those issues.
Diploma Policy	
The degree of Doctor of Philosophy in Disability Sciences is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research creativity: The ability to discover issues related to disability sciences and create original research	① Can the student identify and formulate research questions related to disability sciences from a professional standpoint? ② Can the student solve problems related to disability sciences with an original research plan?
7. Ability to plan and execute research: The ability to plan and execute cutting-edge research on disability sciences	① Can the student develop a long-term research plan for an important issue related to disability sciences? ② Can the student research disability sciences based on a research plan they developed and modify it as appropriate?
8. Research dissemination ability: The ability to disseminate research findings related to disability sciences through academic journals	① Can the student present and discuss their own research findings on disability sciences in class or other settings? ② Has the student published the findings of their own research on disability sciences in an academic journal?

9. Ability to understand and communicate about disabilities: Advanced and extensive knowledge of disability sciences and the ability to teach it to others	① Can the student clearly and logically describe the nature of their specialized knowledge in disability sciences?
10. Ethical understanding and attitude: The ability to implement and teach others the ethical procedures necessary for research and practice in disability sciences	① Has the student completed a research ethics application? ② Can the student acquire the ethical values and knowledge necessary for research on disability sciences and communicate them clearly?

#### Dissertation evaluation criteria

- The Research Guidance Committee, consisting of 1 academic advisor (research supervisor, chairman) and 2 assistant academic advisors (committee members), will guide doctoral dissertations until the dissertation is submitted.  
The submitted dissertation will be reviewed and evaluated by a Dissertation Review Committee comprising 1 primary reviewer and 3 secondary reviewers. At least 1 member of the review committee is selected from the faculty not in charge of this program.
- Evaluation of the doctoral dissertation will be made comprehensively from the following perspectives, based on the peer review of the submitted dissertation, the content of the final presentation, and the oral examination results.
  1. The significance and position of the research in the field of disability sciences is clearly expressed based on an understanding of past research and research trends in relevant fields both in Japan and internationally.
  2. The results of original research that contributes to the development of the field of disability sciences are included in an amount appropriate for an academic paper.
  3. The reliability of the research findings has been adequately verified based on sufficient knowledge of research integrity.
  4. The discussion of the research findings is valid, and the conclusion is based on objective evidence.
  5. The research background, objective, method, results, discussion, and conclusion are organized in a format appropriate for a doctoral dissertation in the field of disability sciences.

#### Curriculum Policy

The Doctoral Program in Disability Sciences fosters researchers or highly skilled professionals with research skills who can independently carry out research to understand the characteristics of people with disabilities and overcome or eliminate the difficulties associated with them, focusing on their respective areas of specialization, and disseminate the results of their research both domestically and internationally.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Through major coursework (research in a specialized field), students will acquire ethical understanding and attitude, the ability to plan and execute research, research creativity, and research dissemination ability by participating in activities such as individual and group discussions on research topics with their academic advisor and two assistant academic advisors.</li> <li>• Through the foundational course Disability Sciences Research and Practice, students will acquire the ability to understand and communicate about disability (knowledge and research methods) by assisting in classes in the College of Disability Sciences under the guidance of the faculty member in charge of the class.</li> <li>• Through the foundational course Overseas Research Activities, students will acquire research dissemination ability by presenting research at international conferences and participating in research exchange with graduate students at overseas universities and other partner institutions.</li> <li>• Through research ethics workshops, students will acquire ethical understanding and attitude.</li> <li>• Through presentations regarding their doctoral dissertation, students will acquire research dissemination ability.</li> </ul>
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Learning methods · Processes	<p>The degree program curriculum consists of courses for the preparation of a doctoral dissertation. Research courses are structured within specialized fields; graduate students must take one group of research courses (Research I, II, and III) from their chosen specialization as a compulsory subject. In all specializations, students must take part in a design presentation in Research I (October of the first year), submit an academic paper in Research II, and take part in a mid-term presentation in Research III (June of the third year).</p> <p>In the spring semester of the first year, a research ethics workshop is held separately from classes to train attitudes toward research ethics and specific research ethics review procedures. Then, in Disability Sciences Research and Practice in the fall semester of the first year, students develop the teaching skills by working in the research methods for their own specialized field as class assistants for courses in the College of Disability Sciences under the guidance of the faculty member in charge of the class.</p> <p>In addition, through presentations at international conferences and classes for research exchange seminars with graduate students of international partner universities (Overseas Research Activities), students develop the communication ability, international character, and research dissemination ability necessary for a researcher or highly skilled professional with research skills.</p>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Concerning guidance for the doctoral dissertation, after receiving instruction from the academic advisor and assistant academic advisor, a design presentation will be held in the fall semester of the first year with the attendance of all involved faculty, and the research plan will be reviewed.</li> <li>• After passing the design presentation, a mid-term presentation will be held in the spring semester of the third year. The conditions for holding a mid-term presentation are: (1) approximately 70% of the doctoral dissertation's main research data have been collected, and (2) part of the research comprising the doctoral dissertation has been submitted to an academic journal.</li> <li>• After passing the mid-term presentation and submitting the final dissertation, the final presentation for the preliminary examination in the degree program will be held. The condition for holding the final presentation is that "the research paper of the first author that constitutes the doctoral dissertation must be published in peer reviewed Japanese national academic journals or an international academic journal."</li> </ul>
Admission Policy	
Desired students	<p>We are seeking individuals with research skills of disability sciences, possessing a strong interest in cutting-edge research in Japan and abroad, and aiming to become researchers or highly skilled professionals with research skills who have global perspectives in fields such as education, welfare, clinical practice, public administration, or international cooperation in the future.</p>
Selection policy	<ul style="list-style-type: none"> <li>• Evaluation will be based on the score of the English external examination, the master's thesis review, and an oral presentation on their research plan and oral presentation.</li> <li>• Through the entrance examination, the applicant's English proficiency and research skills related to disability sciences will be reviewed.</li> </ul>

## Doctoral Program in Counseling Science

Name of the degree to be conferred	Doctor of Philosophy in Counseling Psychology
Educational purpose	The program provides comprehensive fundamental education in counseling for researchers and professionals in the counseling field, and fosters highly-skilled professionals and university faculty (researchers) who can contribute to society by acquiring the results and methodologies of international and interdisciplinary research, and solving various problems in the workplace and society scientifically, practically, and developmentally in cooperation with other professions.
Vision of human resources development	To develop human resources who can set up original and excellent themes in the field of counseling science, write papers with a systematic logical structure using appropriate methods, obtain high academic reputation in the relevant academic field, apply the results to society, and conduct research that contributes to society.
Diploma Policy	

The degree of Doctor of Philosophy in Counseling Psychology is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research skills: Ability to set up advanced research topics based on the latest expertise in the counseling science field, and to carry out research plans independently.	① Being able to formulate an advanced research agenda based on the latest expertise in the field of counseling science ② Independently carry out a research plan based on current expertise in the field of counseling science
7. Expertise: Advanced and specialized knowledge and operational skills in the field of counseling science	① Acquired advanced and specialized knowledge in the field of counseling science ② Mastery of advanced operational skills in the field of counseling science

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| <p>8. Ethics: ethics and ethical knowledge appropriate for a researcher or a highly skilled professional in the counseling science field, and in-depth ethical knowledge of the specific field of study.</p> | <p>① Mastery of ethics and ethical knowledge appropriate for a researcher or advanced professional in the field of counseling science or highly skilled professional in the field of counseling science.</p> <p>② In-depth ethical knowledge of the specific field of study in the counseling sciences.</p> |
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#### Dissertation evaluation criteria

1. The significance and position of the relevant research in the field of counseling science should be clearly stated based on an understanding of domestic and international research trends and previous research in related fields.
2. The doctoral dissertation must consist of multiple studies conducted with a consistent research purpose.
3. Original research results that contribute to the development of the counseling science field should be included in an amount suitable for publication as an academic paper.
4. The reliability of the research results should be sufficiently verified based on sufficient knowledge of research fairness.
5. The discussion of the research results is reasonable and the conclusions are based on objective evidence.
6. The background, purpose, methods, results, discussion, and conclusions of the research must be summarized in a format appropriate for a doctoral dissertation in counseling science. Those who wish to apply for the examination of the dissertation must pass the preliminary department examination in advance.

Standard to be met by the thesis: Both the Chair and Co-Chairs must judge that the thesis meets 1-6 above.

Review committee members: 1 Chair, 3 Co-Chairs (including at least 1 member from outside the degree program)

Examination method: Doctoral dissertation, thesis presentation, and oral examination are judged by the Chair and Co-Chairs based on the academic paper standards.

Examination items: Doctoral dissertation, thesis presentation, and oral examination

#### Curriculum Policy

Based on a combined coursework-research-work curriculum policy optimized for working adults, the program provides flexible and organically related guidance on dissertation preparation and dissertation examination, leading up to degree completion.

<p>Curriculum organization policy</p>	<p>Education and research guidance will be provided to cultivate a broad basic background in the field of counseling science, a broad perspective, and general knowledge and abilities to support activities in various fields of society, as well as research skills, specialized knowledge, and ethical views in developmental psychology, social psychology, clinical psychology, industrial/organizational psychology, educational psychology, and criminal psychology.</p>
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In principle, students must be enrolled for at least three years. Students are required to take 6 credits of required courses in each course to build a conceptual understanding and academic foundation of counseling science, and 4 credits of elective courses based on their research topics.

Students must take at least 4 credits from elective courses designated by their academic advisor and secondary advisor, and receive the necessary research guidance and conduct research to prepare their doctoral dissertation. They are required to pass the preliminary examination and final examination of the doctoral dissertation. In the doctoral dissertation examination, the student will be actively evaluated not only on the basis of scientific logic, but also on the basis of practical issues, usefulness in the field, effectiveness, and novelty. It is recommended that students take one credit from the common specialized foundation courses of the Faculty of Engineering to contribute to the cultivation of fundamental knowledge, broad perspectives, and general knowledge and abilities in related fields, with the major field of study as the axis. Students who pass the final examination will be awarded the degree of "Doctor of Counseling Science".

Learning methods • Processes	In the first year, students are required to give a presentation on their research plan, a presentation on literature research necessary for writing a doctoral thesis, and submit a list of references. Students are required to report on the progress of their doctoral thesis research at the Progress Report Meeting and Interim Presentation in the second year, and Progress Report Meeting in the third year. In addition, students are required to participate in seminars given by their supervisors in principle, and seek guidance from their secondary supervisors after each debriefing session.
Evaluation of learning outcomes	The research plan presentation and literature research presentation in the first year, the progress report meeting and interim presentation in the second year, and the progress report meeting in the third year are all approved for credit in the corresponding courses based on the report and submission of the post-report. The doctoral dissertation will be comprehensively evaluated in terms of the originality of the research appropriate to the counseling field, the overall structure of the dissertation, the appropriateness of the analysis, the validity of the discussion and conclusions, and the consistency of the logic, through a preliminary review by three faculty members and a final review by four faculty members. The doctoral dissertation must include at least two peer-reviewed academic papers as the main thesis.
Admission Policy	
Desired students	The purpose of this program is to develop individuals who can make full use of their positions and experiences as working adults and who can independently and enthusiastically conduct research and inquiry on practical issues related to counseling science using counseling science techniques. In particular, students who have work experience in companies, school education (including special needs education), psychology-related fields, medical and health institutions, welfare facilities and consultation facilities, training schools for psychology and rehabilitation professionals, vocational support centers and companies employing people with disabilities, and government and administrative agencies, and who are highly interested in creating new research and practical clinical practice are desirable. The ideal candidate will have a strong interest in creating new research and clinical practice.
Selection policy	In principle, applicants must have at least two years of work experience before admission. Successful applicants will be announced in early December.

## Doctoral Program in Rehabilitation Science

Name of the degree to be conferred	Doctor of Philosophy in Rehabilitation Science
Educational purpose	In this course, interdisciplinary highly specialized professionals shall be trained, who provide comprehensive and fundamental education for the researchers and specialized professionals relating to rehabilitation, acquire international/interdisciplinary research outcomes and methodology in collaboration with other occupations, scientifically/practically/developmentally solve various problems in their workplace and society and contribute to society.
Vision of human resources development	In this Degree Program, the human resources shall be trained who have comprehensive and inclusive ability necessary for correspondence and development in a broad view relating regarding various problems which working individuals in-service encounter at their workplaces and whose solutions are promptly required. In comprehensive and inclusive rehabilitation area, highly specialized professionals and faculty members with high practical R&D ability relating to scientific solution of frontline problems shall be especially trained.

### Diploma Policy

The degree of Doctor of Philosophy in Rehabilitation Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in areas of rehabilitation.	① Can the student set up an advanced research project on rehabilitation and communicate the plan appropriately to others? ② Is the student able to publish the results of their advanced research on rehabilitation in domestic and international professional journals? ③ Can the student complete an advanced doctoral dissertation on rehabilitation and present the results appropriately?

7. Specialized knowledge: Leading-edge and advanced specialized knowledge and command areas of rehabilitation	Can the student acquire advanced, highly specialized knowledge about rehabilitation and gain the ability to disseminate it by themselves?
8. Ethical view: Ethical view and ethical knowledge appropriate for researchers areas of rehabilitation and deep ethical knowledge about the specific area of expertise	Is the student able to gain advanced research skills, ethics and in-depth ethical knowledge about rehabilitation?

#### Dissertation evaluation criteria

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in rehabilitation science field is clearly described.
2. Right amount of original research outcomes that contribute to development in and outside Japan of rehabilitation science field is contained as master's thesis.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for research outcomes is valid and conclusion is based on objective evidence.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as dissertation of rehabilitation science field.

Level standards required for the degree thesis: Both chief supervisor and sub supervisor(s) can judge that master's thesis has satisfied the above-mentioned 1 to 5.

Review board members: 1 primary examiner, 3 secondary examiners

Examination Method: doctoral dissertation, dissertation presentation, and oral examination, judged comprehensively by primary and secondary examiners.

#### Curriculum Policy

Along with advanced research skills, expertise, and ethics across the four fields of rehabilitation (Medical Rehabilitation, Special Needs Education, Social Rehabilitation, and Vocational Rehabilitation), education and research guidance will be provided to cultivate interdisciplinary and advanced professionals based on interdisciplinary rehabilitation and general-purpose knowledge and abilities to train teachers of higher education, such as those in professional rehabilitation training schools. Based on a Curriculum Policy of combined coursework and research work optimized for working professionals, the program provides a flexible and organically related instruction in dissertation writing and dissertation review leading up to the degree.

Curriculum organization policy	In order to contribute to the cultivation of basic knowledge, a broad perspective, and versatile knowledge and abilities in related rehabilitation fields, students are required to take Basic Lecture on Rehabilitation Sciences, Seminar of Rehabilitation Sciences, and Special Lecture on Rehabilitation Sciences, as well as one credit from the Inter-disciplinary Foundation Courses in the Graduate School of Science to contribute to the acquisition of knowledge in a broader range of related fields, based on the student's field of expertise. Specific subjects to be registered and system to deploy sub supervisor(s) shall be determined based on research plans career plans of individual students etc. As a general rule, students must be enrolled in the program for a total of three years or more. Complete 6 credits of compulsory subjects that build up a conceptual understanding and academic foundation of rehabilitation science, as well as 4 or more credits of elective subjects that are highly elective and suited to the research topic. Complete at least 4 credits of elective courses designated by the advisor and secondary advisor, receive research guidance and training necessary for the preparation of the doctoral dissertation. Pass the preliminary and final examinations for the doctoral dissertation. In the doctoral dissertation review, not only scientific logic, but also practical problem-setting, usefulness, effectiveness, and novelty in the field will be actively evaluated. The degree of "Doctor of Rehabilitation Science" is awarded to those who pass the final exam.
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Learning methods • Processes	In the first year, students are required to give a presentation on their research plan, a presentation on research necessary for writing their doctoral dissertation, and to submit a list of references required for the preparation of the doctoral dissertation; (1) Progress report meeting in the second year, (2) Midterm presentation meeting in the third year, and (3) Progress report meeting in the third year to report the progress of doctoral dissertation research. In addition, students are expected to participate in the seminars of their advisors and seek the guidance of their secondary advisors after each report meeting.
Evaluation of learning outcomes	Credit will be granted for each of the first year's research plan presentation and literature review, the second year's progress report (1) and midterm presentation and the third year's progress report (2) based on the report and the submission of a post-report. The originality of the research appropriate to the field of rehabilitation, the structure of the entire dissertation, the appropriateness of the analysis, the appropriateness of the discussion and conclusions, and the consistency of the logic will be comprehensively evaluated through a preliminary review by three faculty members and a final review by four faculty members. The doctoral dissertation must contain at least two peer-reviewed scientific papers as the main dissertation.
Admission Policy	
Desired students	The purpose of this program is to develop individuals who can make full use of their positions and experiences as working adults and who can independently and enthusiastically conduct research and inquiry on practical issues related to rehabilitation science using rehabilitation science techniques. It is particularly desirable to have work experience in medical and health care institutions, welfare facilities, school education (including special needs education), rehabilitation professional training schools, vocational support centers and companies that employ people with disabilities, and government and administrative agencies, and to have a strong interest in the creation of new research and clinical practice.
Selection policy	As the entrance examination will be held in November, information on the examination will be released in May, and the deadline for application is early October. Successful applicants will be announced in early December.

## Doctoral Program in Neuroscience

Name of the degree to be conferred	Doctor of Philosophy in Neuroscience
Educational purpose	The program aims to cultivate researchers and highly skilled professionals in neuroscience who possess a broad and profound academic foundation in brain function, contribute to the understanding of the human mind as a higher brain function, and are sensitive and committed to addressing the complex issues related to the mind and behavior that society faces. These individuals are expected to have a strong sense of professionalism as experts in neuroscience, supported by rich personal qualities.
Vision of human resources development	<ul style="list-style-type: none"> <li>• Individuals who, grounded in an interdisciplinary understanding of neuroscience, can respond flexibly and responsibly to the complex issues related to the mind and behavior that modern society faces in diverse settings both domestically and internationally.</li> <li>• Individuals who, in domestic and international educational and research institutions, can take a leading role in human resource development and interdisciplinary research by upholding research ethics and demonstrating a sense of professionalism in neuroscience, strong self-management, and well-rounded personal qualities.</li> <li>• Individuals who possess the highest level of interdisciplinary knowledge on both normal and disordered brain functions and are capable of advancing both basic and applied research.</li> </ul>

### Diploma Policy

The degree of Doctor of Philosophy in Neuroscience is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?

6. High level of expertise: Expertise in the neurosciences to develop and implement advanced research designs and produce superior research results	① Can the student identify new challenges based on expertise in the field of neuroscience? ② Can the student develop and implement a research plan to solve the problems found?
7. Advanced research skills: Ability to conduct advanced research (experiments and surveys) in human and animal subjects in the field of neuroscience based on research ethics	Can the student use advanced research methods in the field of neuroscience to solve research problems?
8. Research information gathering and dissemination skills: Ability to write, express, and debate in English appropriately to present and discuss research findings	① Can the student grasp the latest research trends in the field of neuroscience published in international journals and apply them to their own research? ② Can the student accurately explain their expertise and research results in the field of neuroscience based on logical thinking, in an international context?

#### Dissertation evaluation criteria

After satisfying the requirements stipulated in the University of Tsukuba's Graduate School Regulations, the dissertation must be judged as acceptable with the following two criteria confirmed by the final examination.

1. The dissertation must contain sufficient new academic knowledge in the field of neuroscience.
2. The applicant must have the high level of research skills necessary to work as an independent researcher in the field of neuroscience.

(Evaluation items)

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in neuroscience is clearly described.
2. Contain a reasonable amount of original research findings that contribute to the advancement of the field of neuroscience to be published in academic papers.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as doctoral dissertation in the area of neuroscience. Those who wish to apply for a dissertation review must pass a preliminary examination in their department.

(System for examiner/examination method)

The dissertation review committee consists of four members, including three faculty members from the degree program (the primary advisor is one of the research supervisors) and one faculty member from outside the degree program. All members attend the final examination, which consists of an oral examination on the dissertation and related fields, and pass/fail decisions are made.

#### Curriculum Policy

1) Research skills based on the mastery of specialized knowledge and research methods in all areas of neuroscience; 2) Logical thinking skills, writing skills, advanced English expression skills, debating skills; 3) Communication and planning skills required for collaboration with experts in other fields; 4) Understanding and practice of research ethics, self-management skills and research leadership skills as a researcher; 5) The Basic curriculum is designed to help students acquire the ability to disseminate the results of scientific research to society, and the awareness and the human skills to support them as professionals who are sensitive and sincere in dealing with the mental challenges that society faces.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• In this course, the "Career Plan, Researcher Ethics, and TF Training Seminar" is a compulsory subject to develop a foundation for professional researchers and educators in neuroscience. In particular, students will be encouraged to clarify their career plans and strengthen their self-management skills through the use of MyIDP and other tools.</li> <li>• In addition, students are encouraged to take open-ended subjects such as the "Foundation Courses" (free choice of subjects), "Introduction to Academic Integrity" and "Applied Ethics" as common subjects for the graduate school, in order to cultivate a broader perspective and to cultivate flexible thinking and research planning skills that are not limited by existing academic systems.</li> <li>• Our department offers "Advanced Scientific Research Proposal in English" as a Foundation Subject for Major, and fosters advanced scientific English skills that will contribute to the writing of English papers and doctoral dissertations, as well as communication and debate at international conferences and in international collaborative research.</li> <li>• The "Advanced Neuroscience Seminar " where students participate in research seminars held by internal and external research organizations, and the "Advanced Neuroscience Internship" where students are encouraged to participate in training courses offered by national and international educational and research institutions, to encourage the acquisition of cutting-edge techniques and knowledge that are essential for specialized research in neuroscience, and to give students hands-on experience of research activities in practical settings.</li> <li>• The students will develop their research leadership skills through TF experience as a review/discussion of Introduction to Neuroscience, an introductory course in the Master's Program, an English Journal Club, and as a facilitator in an advanced neuroscience research seminar.</li> <li>• "Neuroscience Dissertation Research" is offered in six compulsory courses to guide students through the process of deciding on a doctoral dissertation research topic, conducting research, three doctoral research qualifying exams, doctoral dissertation writing, doctoral dissertation final examinations, final public presentation of the doctoral dissertation, and obtaining the doctoral degree in a step-by-step manner, in order to ensure the quality and completion of degrees within the standard time frame.</li> </ul>
Learning methods • Processes	<p>Learning in the first year</p> <ul style="list-style-type: none"> <li>• Students are required to take the " Career Planning, Researcher Ethics, and TF Training Seminar" held immediately after enrollment and formulate their own academic and career plans up to and after the completion of the doctoral course. In addition to learning about researcher ethics, students will also attend a basic course on researcher ethics in order to be involved in teaching first semester courses as a TF.</li> <li>• Acquire a broad perspective as a researcher by taking "The Inter-disciplinary Foundation Courses (free choice of subjects).</li> <li>• Students will acquire advanced communication, debating, and reading skills in English, as well as specialized and advanced knowledge and research methods in neuroscience by taking compulsory courses in "Advanced Scientific Research Proposal in English 1" and "Advanced Neuroscience Seminar 1". Students also take "Advanced Neuroscience Internship" to gain research experience at universities and research institutions in Japan and abroad.</li> <li>• Students are required to take "Neuroscience Dissertation Research 1" to determine the theme of their doctoral research, conduct literature research and preliminary research. "Neuroscience Dissertation Research 2" is to advance doctoral research. At the same time, preparation for the Qualifying Examination for Doctoral Dissertation Research (QE1) will proceed.</li> </ul> <p>Learning after 2nd year</p> <ul style="list-style-type: none"> <li>• Students take compulsory courses in "Advanced Neuroscience Seminar 2", "Advanced Scientific Research Proposal in English 2", free courses in "Advanced Neuroscience Seminar 3", and courses in "Foundation Courses ( free choice of courses)" and other degree programs to further their studies as neuroscientists.</li> </ul>

	<ul style="list-style-type: none"> <li>• Students are required to take "Neuroscience Dissertation Research 3" to advance their doctoral research. At the same time, prepare for the Qualifying Examination for Doctoral Dissertation 2 (QE2). During "Neuroscience Dissertation Research 4," students will do research for their doctoral dissertations. At the same time, students prepare for the Qualifying Examination for Doctoral Dissertation 3 (QE3) and prepare for submission to an international journal.</li> <li>• Students complete "Neuroscience Dissertation Research 5" and work on their doctoral dissertation. In "Neuroscience Dissertation Research 6," students complete their doctoral dissertation. At the same time, they prepare for the final doctoral examination and the final public presentation of the doctoral dissertation.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The evaluation of courses other than "Neuroscience Dissertation Research 2-6" will be conducted according to the evaluation method described in the syllabus.</li> <li>• In addition to the grades given by the academic advisor, courses in "Neuroscience Dissertation Research 2-6" will be evaluated according to the following, and credits will be awarded.</li> </ul> <ol style="list-style-type: none"> <li>(1) "Neuroscience Dissertation Research 2": Perform neuroscience dissertation research qualification examination 1 (QE1). Only successful applicants will be awarded credits for Neuroscience Dissertation Research 2.</li> <li>(2) "Neuroscience Dissertation Research 3": Perform neuroscience dissertation research qualification examination 2 (QE2). Only successful applicants will be awarded credits for neuroscience dissertation research 3.</li> <li>(3) "Neuroscience Dissertation Research 4": Perform neuroscience dissertation research qualification examination 3 (QE3). Only successful applicants will be awarded credits for neuroscience dissertation research 4.</li> <li>(4) "Neuroscience Dissertation Research 5": Credit for neuroscience dissertation research 5 will be granted only to those who have been accepted (or is judged to be equivalent) to present one refereed English-language paper as first author, which is a requirement for neuroscience dissertation submission.</li> <li>(5) "Neuroscience Dissertation Research 6": The final examination for neuroscience dissertation research will be conducted. It consists of a public presentation and oral examination based on the submitted neuroscience dissertation in dissertation format.</li> </ol>
Admission Policy	
Desired students	Applicants must have majored in neuroscience, psychology, disability science, biology, or basic medicine in the master's course. Applicants must have achieved a certain level of proficiency in the master's course and have the ability and desire to become independent researchers after completion of the course.
Selection policy	The entrance examination will be conducted through an oral examination. The following qualities will be emphasized in the selection process: (1) content and understanding of the research conducted in the master's course, (2) research planning ability, and (3) presentation ability.

## Doctoral Program in Medical Sciences

Name of the degree to be conferred	Doctor of Philosophy in Medical Sciences
Educational purpose	Doctoral Program in Medical Sciences aims to understand the fundamental process of life phenomena, including fetal development, birth, growth, aging, senescence, and death, and find better ways to prevent, diagnose, and cure human diseases. The goal is to train researchers and practitioners who could make significant contributions to our society's health and welfare.
Vision of human resources development	The scope of our medical science program includes biomedical, clinical, and public health sciences. Our graduates are expected to carry out original research utilizing cutting-edge techniques acquired from a wide range of medical and life technologies. High-quality research, combined with ethical knowledge and communicative skills, would advance the development of new diagnoses and treatments for diseases.
Diploma Policy	

The degree of Doctor of Philosophy in Medical Sciences is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Establish research agendas: Identify issues related to diseases and life phenomena and to formulate into an original research plan.	Be able to identify critical issues and develop an original research plan based on the latest findings in the field.
7. Conduct advanced research: Ability to plan and execute cutting-edge research in life sciences.	① Be able to understand and apply the latest methods and procedures available from various fields of study to accomplish your research. ② Be able to have skills in collecting literature, developing a strategy, and consulting with others to achieve your research.



8. Specialized knowledge: Understand and utilize advanced knowledge to overcome difficulties in elucidating diseases or life phenomena.	Acquire and apply basic, clinical, and social medicine knowledge to understand diseases and elucidate life phenomena.
9. Ethics: High awareness and sense of ethics appropriate for researchers and professionals who overcome diseases and elucidate life phenomena.	① A high level of awareness and motivation to elucidate the diseases and life phenomena? ② Have an ethical view and moral principles suited for researchers and medical professionals.
10. Ability to express informative content: Think logically and express oneself as a researcher and advanced medical professionals.	Be able to explain technical information logically and clearly in native and foreign languages.

#### Dissertation evaluation criteria

##### Dissertation Requirements

1. Publish a research report that contributes to the development of medicine and in scientific journals.
2. The purpose, methods, results, and discussion of the research must be in a format appropriate for a dissertation.
3. The results obtained need to be verified for authenticity.
4. The research outcomes should be discussed appropriately.
5. The significance of the research should be addressed clearly, with an understanding of global research trends in related fields.

##### Review board members

- The dissertation review committee consists of one principal examiner and three secondary examiners. Candidates for the primary and secondary examiners are selected by a consensus of the medical degree program leader and the members of the Academic Affairs Committee. The establishment of the dissertation review committee is decided by the Steering Committee of the Graduate School of Comprehensive Human Sciences committee.
- Candidates for principal examiners will be selected from the research advisors of the Graduate School of Comprehensive Human Sciences Research Group.
- Candidates for secondary reviewers will be selected from among the research advisors or course instructors of the Graduate School of Comprehensive Human Sciences Research Group. In addition, faculty members of other graduate schools of the university, graduate schools of other universities, or those who are recognized by the Steering Committee of the Doctoral Program in Medical Sciences as having research achievements equivalent or superior to those of the graduate school may be added as candidates for secondary reviewers.
- The dissertation review committee shall, in principle, select as candidates the same primary and secondary examiners as the preliminary dissertation review committee.

##### Evaluation

- In the second half of the fourth year, a preliminary dissertation review committee consisting of one primary examiner and three secondary examiners is formed. The committee will evaluate and provide guidance on dissertation preparation based on the content of the presentation and the planned dissertation.
- The student meets the qualifications to submit a final dissertation if they pass the mid-term evaluation, publish at least one original research article as a first author in a peer-reviewed international journal (written in English), and obtain a passing grade by the preliminary dissertation review committee.
- Upon submitting the dissertation, the dissertation review committee is established. The committee will review the dissertation and conduct a final examination.

##### Criteria for passing the final examination

1. Communication skills to merit the degree in Doctor of Medicine.
2. Understand the legal and ethical requirements in conducting medical research.
3. Be able to explain the objective, methods, and results of their research clearly and concisely.
4. Be able to explain, discuss and justify the results scientifically.
5. Explain the significance of the research in relation to global research trends in their field of study.
6. Be able to conduct independent research and publish the new research finding in academic journals in the future.

## Curriculum Policy

While the remarkable progress in life and medical sciences has brought steady improvement in medicine, there is still a need for new treatment and prevention methods for most diseases. For this purpose, it is necessary to understand all phenomena of human life. The Biomedical Science division has promoted education and research to understand life phenomena and diseases mainly from life sciences and basic medicine prospective. The Clinical Medical Science division focuses on understanding life phenomena and diseases from clinical and social medicine perspectives.

The Doctoral Program in Medical Sciences merged the two divisions to provide education and research guidance beyond conventional training for doctoral students. The new program consists of core course subjects to prepare students to select their research topics. The students could formulate and implement the research plans, evaluate their results, and publish research findings in internationally recognized journals. The curriculum emphasizes research guidance involving multiple faculty members. It provides an environment where students can learn with international students and international researchers.

In addition to research activities, students will learn their capabilities and ethics in basic, clinical, and social medicine through various courses offered from both divisions. The education and research guidance in Comprehensive Human Science Research Group aims to understand the nature and science behind the "human beings." Students will learn essential backgrounds and skills in medicine that apply to various fields of study.

### Curriculum organization policy

The General Education Courses provide ethical and legal knowledge to conduct biomedical research. The students will plan their research independently and learn advanced methodologies and research trends. The classes are taught in English with international students. In addition, maximizing the number of 50-course credits allows students to select courses relevant to their studies.

Japanese will also be used for guidance and examination if student is more familiar or fluent in Japanese than English language.

- "Introduction to Medical Research" course introduces bioethics, research ethics, information ethics, and legal knowledge about recombinant DNA and animal experiments. Students set their dissertation research agenda through discussions with their research advisors in the "Special Studies on Medical Sciences" and "Special Practice in Medical Sciences." The students will acquire the ability to plan and implement a research plan.
- In the "Seminar in Medical Sciences," students will discuss various areas of medicine, refine their application skills, and acquire scientific writing skills.
- "International Practical Medical Science" and "Medical and Scientific Communication" courses allow students to discuss their research with overseas researchers. They will also have an opportunity to present and listen to the research presentations from various topics.
- In the "Lecture and Discussion" of the Major Subject group, students will learn to plan, conduct, and evaluate experimental approaches. In the "Seminar", students learn from the abstracts of original research papers to understand the content research in their field of specialization and evaluate their research on global trends and standards.
- It is recommended that students take two additional credits from Degree Programs' Common Courses, Inter-disciplinary Foundation Courses, and Graduate General Education Courses to acquire general and specific knowledge with broad perspectives.

### Learning methods • Processes

The Program schedule is listed below.

- By the end of the second year, students must earn 30 credits in required and elective courses.
- In the first half of the third year, there will be a mid-term evaluation. Students will receive guidance on the preparation of their dissertations.
- The student meets the qualifications to submit a final dissertation if they pass the mid-term evaluation, publish at least 1 original research article as a first author in a peer-reviewed international journal (written in English), and obtain a passing grade by the preliminary dissertation review committee during the second half of the fourth year.
- Upon submitting the dissertation, the dissertation review committee is established. The committee will review the dissertation and conduct a final examination.

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• During the first half of the third year, students will present the progress of their dissertation research in the form of a public presentation. A midterm evaluation committee, consisting of one principal examiner and three secondary examiners, evaluates and guides the dissertation based on the content of the presentation and the mid-term research report.</li> <li>• In the second half of the fourth year, a preliminary dissertation review committee, consisting of one primary examiner and three secondary examiners, is formed. They will evaluate and guide dissertation preparation based on the content of the presentation and dissertation plan.</li> <li>• Upon submitting the dissertation, the dissertation review committee is established. The committee will review the dissertation and conduct a final examination.</li> </ul>
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## Admission Policy

Desired students	<p>The objective of the program is to train individuals who can contribute to the understanding of life phenomena and diseases. We seek students who are motivated, ethically fit, and academically competent to the above objectives.</p> <p>We accept students from all over the globe in pursuing innovative research and have a strong will to contribute to the future of humanity. Students may elect the courses to be taken in Japanese or English.</p>
Selection policy	<ul style="list-style-type: none"> <li>• The candidates shall be selected by written and oral examinations.</li> <li>• The written examination will assess both English language skills and basic knowledge in life sciences and medicine.</li> <li>• The oral examination will be conducted in Japanese or English to evaluate the applicant's objectives, motivation, ethical quality, basic and specialized knowledge in the field of study, and communication skills</li> </ul>

## Doctoral Program in Nursing Science

Name of the degree to be conferred	Doctor of Philosophy in Nursing
Educational purpose	There is a need for health care professionals who can respond creatively, scientifically, and flexibly to the diverse medical needs of people from various cultural backgrounds. Based on an interdisciplinary and international perspective, this degree program will train students to become advanced professionals in nursing, educators, researchers, and nursing and medical experts in the fields of policy and administration who not only possess specialized knowledge and skills, but who are also capable of constantly examining nursing practice with a research mindset. In addition, we will develop individuals who can develop new nursing techniques, education, and research methods based on "interdisciplinarity" and "science," not only in the specialized fields of nursing.
Vision of human resources development	Individuals who can become educators, researchers, and high-level professionals who can serve as bridges between practice and theory, with the ability to systematize education and research methods that form the basis for the creation of new knowledge and technological development required for the next generation.

### Diploma Policy

The degree of Doctor of Philosophy in Nursing is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Ability to create scientific evidence: Research ability to create new knowledge that will become the basis for nursing practice.	① Do you have results that can be regarded as the creation of new knowledge? ② Is the research expected to create knowledge that will contribute to the development of nursing science?
7. Expertise in nursing science: Ability to deepen advanced expertise in nursing science.	① Can you explore the essence of expertise in nursing science? ② Can you grasp the phenomena of nursing science and make them concrete and abstract?

8. Ethics as a researcher and educator: Ability to conduct research and education with a solid sense of ethics	① Can you make decisions and take actions based on ethical standards that protect human dignity? ② Can you formulate a research plan that takes research ethics into consideration and carry it out appropriately for an advanced research project?
9. International research and practice skills: Ability to conduct research and practice at an international level	① Can you disseminate his/her achievements in international academic exchange? ② Can you discuss his/her expertise with students and researchers whose native language is not Japanese?

#### Dissertation evaluation criteria

##### (Evaluation criteria)

1. The contents of research contribute to nursing science.
2. The dissertation must be original and the arguments supporting the originality must be sound.
3. The significance and purpose of the research must be clearly defined, the research must be conducted using appropriate methods, and the paper must be written using the appropriate format and notation.
4. The data used must have been collected by the applicant in accordance with the purpose of the research. The data used should have been collected by the applicant in accordance with the purpose of the research. On the other hand, if the data includes data from the past (before entering the second semester), the analysis of the data should be new.
5. There should be no ethical issues in conducting the research or publishing the results.

##### (Review Procedure)

- In the research protocol review, a review committee consisting of one primary examiner and one secondary examiner will be organized to review the research protocol and the presentation at the research protocol review meeting together.
- After the research protocol review meeting, the review committee decides whether to accept or re-examine based on the evaluation criteria.
- The acceptance or rejection of a dissertation is determined by a preliminary examination by the Preliminary Dissertation Examination Committee (hereinafter referred to as the "Preliminary Examination Committee"), followed by a dissertation examination and final examination by the Dissertation Examination Committee.
- The role of the Preliminary Examination Committee is to confirm the eligibility of the applicant and to confirm that the dissertation submitted is of a level worthy of examination by the Dissertation Examination Committee. In order to improve the quality of the dissertation, the student may be required to revise the submitted dissertation within a certain period of time.
- The Preliminary Examination Committee will consist of three or four faculty members in charge of the nursing science degree program other than the advisor and the secondary advisor. Of these, the primary examiner and one secondary examiner will be members of the research proposal review committee.
- At the Preliminary Examination Committee, a presentation session will be held to allow the applicant to explain the contents of his/her research and to answer questions about related matters. In principle, the presentation session will be open to the public, and the date, time, place, title of the dissertation, and name of the applicant will be posted in advance.
- In principle, the Preliminary Examination Committee shall consist of four or five faculty members in charge of the Master's Program in Nursing Science other than the advisor and the secondary advisor. The primary examiner shall be the faculty member in charge of research guidance for the Master's Program in Nursing Science. The primary examiner and two secondary examiners shall be members of the Preliminary Examination Committee for the relevant dissertation, and one or more faculty members from other degree programs of the university or from outside the university shall be included as new secondary examiners. In principle, the examiners should have doctoral degrees.
- The expert committee shall have the applicant explain the contents of the research by holding a presentation and carrying out question-and-answer sessions on the matters related to such contents. The presentation shall be open to the public in principle and be announced in advance by releasing the date, place, title of the research assignment, and the applicant's name. The deliberation by the primary and secondary examiner after the presentation to determine the pass/fail will be closed to the public. If, by consensus of the reviewers, the submitted paper is judged to require additional revisions, the reviewers may request the applicant to make such revisions within a certain period.



## Curriculum Policy

The curriculum shall be designed to enable students to work toward the creation of a new nursing science by emphasizing academic fusion and interdisciplinary ideas. As a measure to enhance learning, the curriculum will be structured to enable students to deepen their learning of theory based on scientific evidence and to develop nursing science as a practical science, with the aim of developing individuals with a true balance between practice and theory, beyond the narrow framework of academic disciplines. In addition, the program will provide an environment to cultivate research skills of an international standard by invigorating academic exchange related to education and research, as well as allowing students to study abroad at universities with which we have academic agreements.

Curriculum organization policy	<ul style="list-style-type: none"><li>• The curriculum will be organized to emphasize integration and interdisciplinary thinking, with the entire educational program as one area (nursing science), without being bound by existing nursing science fields.</li><li>• Students are required to take two or more credits from Graduate General Education Courses, Degree Programs' Common Courses, and Inter-disciplinary Foundation Courses in order to contribute to the cultivation of basic knowledge, broad perspectives, and general knowledge and abilities in related fields with the major field of study as the axis.</li><li>• Students will acquire the ability to deepen their expertise in nursing science through "Foundations and Principles of Nursing Science," and acquire the competence of knowledge creation based on scientific evidence through "Advanced Research Methods in Nursing Science". In addition, students will acquire a sense of ethics as researchers and educators through "Advanced Nursing Education" and ability to perform advanced statistical analysis through "Application of Statistics in Nursing Research," and focus on improving their basic abilities and qualities as researchers and educators.</li><li>• Based on the knowledge and abilities acquired in the Foundation Subjects for Major, students will develop advanced knowledge of nursing and research skills to create scientific evidence for the basis of nursing practice through Major Subjects such as "Advanced Topics in Nursing Science" "Advanced Seminars in Nursing Science I," and "Advanced Seminars in Nursing Science II".</li><li>• Students will acquire international-level research skills in the process of working on their dissertations through Major Subjects such as "Research in Advanced Nursing Science" , seminars in research groups, and special lectures by lecturers from academic partner universities.</li><li>• Students will also acquire research skills backed by solid ethics and value standards through Graduate General Education Courses, eAPRIN, ethics in clinical research courses, and "Advanced Seminars in Research Ethics".</li></ul>
Learning methods • Processes	<ul style="list-style-type: none"><li>• The number of credits necessary for completion of doctoral degree course shall be 25 or more</li><li>• Students are required to take at least ten credits of foundation subjects for their major. The "Foundations and Principles of Nursing Science" (2 credits) and "Advanced Research Methods in Nursing Science" (2 credits)" are required. Others are selected from the elective subjects "Advanced Nursing Education" (2 credits), "Application of Statistics in Nursing Research" (2 credits), Graduate General Education Courses, Degree Programs' Common Courses, and Inter-disciplinary Foundation Courses. Students are encouraged to take the foundation subjects for their major in the first half of the first year.</li><li>• The minimum number of Major Subjects to be taken for completion is 15 credits, including "Advanced Topics in Nursing Science" (2 credits), "Advanced Seminars in Nursing Science I" (2 credits), "Advanced Seminars in Nursing Science II" (1 credit), "Advanced Seminars in Research Ethics" (1 credit), and "Research in Advanced Nursing Science" (9 credits).</li><li>• In the second half of the first year, students take "Advanced Seminars in Nursing Science I," in which they review domestic and international papers on research topics, systematically and logically plan and present their research objectives and methods, and constructively discuss their research plan for review.</li><li>• Students who are able to draft a research plan will present their research plan at the research plan review meeting and have their research plan reviewed.</li></ul>



	<ul style="list-style-type: none"> <li>• Students who have passed the research proposal review (expected to be in the latter half of the second year) will take "Advanced Seminars in Nursing Science II" so that they can proceed with their research according to the research proposal, and present the originality and novelty of their research topics with evidence and discuss them constructively.</li> <li>• Students are required to take "Research in Advanced Nursing Science", which is a course for writing a doctoral dissertation. In April of the first year, a faculty advisor and secondary faculty advisors (up to two) will be selected, and a system will be established for students to receive research guidance. For research projects involving human subjects, the plan must be approved by the appropriate ethics review committee before the start of the research.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• The syllabus of each course should clearly state the competencies to be acquired and the evaluation perspectives.</li> <li>• Each course instructor will grade the course according to the evaluation criteria in the syllabus, and the course director will report the final grade for the course.</li> <li>• The research ability and practical ability aiming at international character and international applicability shall be evaluated through the degree of participation in special lectures by the lecturers at the universities with academic exchange agreement etc. and actual results of other research/practical activities with other countries.</li> <li>• In addition to the class subjects, the status of the doctoral dissertation will be evaluated in the research plan review. The research plan review committee will be held three times a year in April, August, and December so that students can apply for review in a timely manner according to their circumstances.</li> <li>- In the research protocol review, a review committee consisting of one primary examiner and one secondary examiner will be organized to review the research protocol and the presentation at the research protocol review meeting together. Neither the advisor nor the secondary advisor can be a member of the review committee. The primary and secondary examiners should be research advisors who hold doctoral degrees. However, if it is judged necessary to conduct a higher quality and more appropriate review based on the content of the research, this is not limited to the secondary reviewers. The members of the research plan review committee will serve as members of the dissertation review committee when the student applies for the degree.</li> <li>- After the research protocol review meeting, the review committee decides whether to accept or re-examine based on the evaluation criteria. The five evaluation criteria for the research protocol review are: (1) whether the research is novel and has academic value, (2) whether the previous research has been thoroughly examined and the research background has been presented, (3) whether the significance and purpose of the research are clear, (4) whether appropriate research methods have been selected, and (5) whether there are no ethical problems in conducting the research.</li> <li>- The student and his/her supervisor who are judged to be re-examined may re-write the research plan referring to the advice of the examiners and re-examine it every semester (however, the re-examination will start from the presentation, and in principle, the primary and secondary examiners will not be changed).</li> <li>• The examination for the doctoral dissertation is as follows.</li> <li>- In principle, the format of the dissertation should be dissertation format. Specifically, the dissertation must include a discussion of the literature on the research topic, the purpose, subject, methods, results, discussion, conclusions, and references of the research in this order, printed in Japanese or English on A4 paper using a word processor, etc., and simply bound. If the original paper is a co-authored paper, the written consent of the co-author(s) to submit the paper as a dissertation must be obtained. If other formats or decisions are required, the Doctoral Program in Nursing Science Education Council will discuss the pros and cons.</li> <li>- The acceptance or rejection of a dissertation is determined by a preliminary examination by the Preliminary Dissertation Examination Committee (hereinafter referred to as the "Preliminary Examination Committee"), followed by a dissertation examination and final examination by the Dissertation Examination Committee.</li> </ul>

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- The role of the Preliminary Examination Committee is to confirm the eligibility of the applicant and to confirm that the dissertation submitted is of a level worthy of examination by the Dissertation Examination Committee. If necessary, in private, the applicant student can explain his or her research and answer questions. In addition, to improve the quality of the dissertation, guidance and advice can be given and the submitted dissertation can be required to be revised within a certain period of time.
  - The Preliminary Examination Committee will consist of three or four faculty members in charge of the nursing science degree program other than the advisor and the secondary advisor. Of these, the primary examiner and one secondary examiner will be members of the research proposal review committee. In principle, the examiners should have doctoral degrees. However, if it is judged to be necessary for more appropriate review based on the research field, research method, etc., the secondary reviewer will not be bound by this rule.
  - The standard qualifications for those who intend to obtain the degree of Doctor of Nursing Science by submitting a dissertation shall be as follows (1) At the time of submission, at least one article related to nursing science must have been published in an academic journal as the first author, (2) the applicant must have passed the review of the research plan, and (3) the applicant must have earned (or expect to earn) at least 25 credits by the end of the third year in accordance with the course of study specified by the Doctoral Program in Nursing Science.
  - At the Preliminary Examination Committee, a presentation session will be held to allow the applicant to explain the contents of his/her research and to answer questions about related matters. In principle, the presentation session will be open to the public, and the date, time, place, title of the dissertation, and name of the applicant will be posted in advance. Since it is open to the public, non-members of the review committee may participate in the questioning. The deliberation by the primary examiner and the secondary examiner after the presentation to determine the pass/fail will be closed to the public. If, by consensus of the reviewers, the submitted paper is judged to require additional revisions, the reviewers may request the applicant to make such revisions within a certain period of time.
  - The dissertation review committee examines whether or not the dissertation that has passed the preliminary examination is suitable for the award of the doctoral degree.
  - In principle, the Preliminary Examination Committee shall consist of four or five faculty members in charge of the Doctoral Program in Nursing Science other than the advisor and the secondary advisor. The primary examiner shall be the faculty member in charge of research guidance for the Doctoral Program in Nursing Science. The primary examiner and two secondary examiners shall be members of the Preliminary Examination Committee for the relevant dissertation, and one or more faculty members from other degree programs of the university or from outside the university shall be included as new secondary examiners. However, if it is judged to be necessary for more appropriate review based on the research field, research method, etc., the secondary reviewer will not be bound by this rule.
  - The expert committee shall have the applicant explain the contents of research by holding presentation and carry out questions and answers session on the matters related to such contents. The presentation shall be open to the public in principle, and be announce in advance by releasing the date, place, title of research assignment and name of the applicant etc. The deliberation by the primary examiner and the secondary examiner after the presentation to determine the pass/fail will be closed to the public. If, by consensus of the reviewers, the submitted paper is judged to require additional revisions, the reviewers may request the applicant to make such revisions within a certain period of time.
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- The dissertation review committee will examine the dissertation to ensure that it is a self-authored paper with novelty, originality, and sufficient academic value in the field of nursing science according to the evaluation criteria. The following five items are the evaluation criteria. (1) The content of the research must contribute to nursing science, (2) The argument must be original and the evidence supporting the originality must be sound, (3) The significance and purpose of the research must be clearly defined, the research must be conducted using appropriate methods, and the paper must be written in an appropriate format and notation, (4) The data used must have been collected by the applicant in accordance with the purpose of the research. If the data includes data from the past (before the applicant entered the doctoral program), the analysis of the data should be novel, and (5) there should be no ethical problems in conducting the research or publishing the results.

## Admission Policy

Desired students	Students are expected to be motivated to contribute to the knowledge system of nursing science through the creation of new knowledge by utilizing the nursing practice and research skills developed in the Master's and Doctoral programs. Furthermore, we seek students who aim to become researchers, educators, and advanced professionals who can bridge the gap between practice and theory based on an interdisciplinary and international perspective.
Selection policy	<ul style="list-style-type: none"> <li>• The entrance examination shall be performed in August. In the case where there are insufficient number of applicants in the examination of August, the examination shall be implemented again in the following February.</li> <li>• The number of applicants shall be 8.</li> <li>• Applicants must meet one of the following qualifications. (1) Those who have a master's degree or are expected to have a master's degree by March of the year before admission, (2) Those who have a professional degree or are expected to have a professional degree by March of the year before admission, (3) Those who have been granted a degree equivalent to a master's degree or a professional degree in a foreign country, or who are expected to do so by March of the year before admission. Those who have reached the age of 24 or who will reach the age of 24 by March of the year before admission.</li> <li>• In the entrance examination, academic ability and character will be assessed through written and oral examinations of specialized subjects and English. In the examination of specialized subjects, questions will be asked using texts related to nursing and medical care in order to evaluate the candidates' specialized knowledge of nursing. In the English examination, questions will be given to evaluate whether the candidate has the English ability to use academic papers from overseas. The oral examination will evaluate whether the student has the ability to conduct original research as a graduate student, and whether the student has aptitude, qualities, future potential, and a clear sense of purpose in the field of nursing science as a researcher, educator, or practitioner.</li> <li>• For the examinees of international students, the following shall be considered: the questions shall be in English and preparation of such questions shall be devised etc.</li> </ul>

## Doctoral Program in Human Care Science

Name of the degree to be conferred	Doctor of Philosophy in Human Care Science
Educational purpose	To cultivate university teachers, researchers, and highly professional educators who have the ability to comprehensively and interdisciplinary elucidate and creatively develop issues related to human care and interpersonal support from the perspective of academic integration in specialized fields such as pedagogy, psychology, welfare, medicine, nursing, and health.
Vision of human resources development	Individuals with highly specialized knowledge of the problems and issues faced by people, research skills and techniques for clarifying issues, methods and techniques for providing care and support to people, and highly specialized knowledge and techniques for teaching.
Diploma Policy	
The degree of Doctor of Philosophy in Human Care Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research skills: Ability to set contemporary and future research questions based on the latest expertise in the field of human care science, and to carry out research plans independently.	① Can the student identify contemporary and future issues in the field of human care science based on the latest expertise? ② Can the student independently carry out a research plan for the research topic set?
7. Expertise: Advanced and specialized knowledge in the field of human care science and interdisciplinary expertise in related sciences.	① Does the student have advanced and specialized knowledge in the field of human care science? ② Does the student have interdisciplinary expertise in related sciences?

8. Ethics: Ethical awareness and knowledge appropriate for a researcher in the field of human care science, and in-depth ethical knowledge of the specific field of study.	① Does the student have in-depth ethical knowledge in the field of human care science? ② Does the student have a sense of ethics and ethical knowledge about the specific field of their major?
9. Interdisciplinary application skills: Ability to apply interdisciplinary knowledge and skills related to human care science to the solution of contemporary and future problems.	① Is the student addressing contemporary and future issues in human care science from an interdisciplinary perspective? ② Is the student attempting to apply interdisciplinary and comprehensive approaches to solving contemporary and future issues in human care science?

#### Dissertation evaluation criteria

After satisfying the requirements stipulated in the Graduate School Regulations of the University of Tsukuba, the dissertation review committee, consisting of one primary examiner and at least three secondary examiners, must confirm that the dissertation meets the following evaluation criteria, and the final examination must result in a passing grade.

1. In human care science, which is an interdisciplinary and multidisciplinary field of study, the dissertation must have a purpose that is sufficiently based on relevant previous research and a theme that is original and novel.
2. The background, objectives, methods, results, discussion, and conclusions of the research should be logically organized in the form of a dissertation.
3. The research should be recognized as contributing to the resolution of issues in human support and human care by obtaining results that contribute to society through appropriate research methods in human care science.
4. The research must be fair and free from ethical problems.

#### Curriculum Policy

In collaboration with the Doctoral Program in Public Health, education and research guidance will be provided to cultivate interdisciplinary expertise, advanced research skills, ethical perspectives, and problem-solving abilities in human care science by faculty members from across multiple fields of human, physical, and medical sciences.

Curriculum organization policy	<p>Students learn theories and research methods in a wide range of specialized fields related to the support of human life and health, such as pedagogy, psychology, physical education, health science, medicine, nursing, epidemiology, and statistics, through a cross-disciplinary faculty structure consisting of faculty members from the humanities, physical education, medicine and medical science, and the National Institute of Health Sciences. In addition to learning theories and research methods in a wide range of specialized fields related to human life and health support, such as medicine, nursing, epidemiology, and statistics, students receive research guidance from faculty members in multiple specialized fields. In this way, students will conduct research on "care" from the multifaceted perspectives of the individual, society, and the environment, and examine the essential clarification and application of care. In addition to acquiring a broad perspective of interdisciplinary integration, students will acquire advanced specialized research skills and problem-solving abilities related to human care science.</p> <ul style="list-style-type: none"> <li>• The program offers cross-disciplinary Foundation Subjects for Major ("Special Lecture", 1 unit for each course, 6 units in total, required) to study theories and research methods in a wide range of fields related to support for human life and health, and to acquire the perspective and expertise of cross-disciplinary integration.</li> <li>• In "Special Lecture on Human Care Science I, II, and III," students will gain expertise in various fields of human care science (Gerontological Nursing and Caring, Education for Human Coexistence, Clinical Psychology, Developmental Clinical Psychology, Social Psychiatry and Mental Health, and Stress Management). In "Public Health I, II, and III," students acquire expertise in the fields of public health (Global Health, Health Care Policy and Management, Health Sociology, Health Service Research, Exercise Nutrition, Health Promotion Sciences, Environmental Health and Sciences and Health Emergency Management).</li> </ul>
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	<ul style="list-style-type: none"> <li>• In the Major Subjects ("Seminar" and "Special Research", 3 credits each, 6 credits compulsory), students acquire cutting-edge, high-level expertise in specialized fields of human care science through the Seminar in Human Care Science, and acquire high-level research methods and ethical standards for writing and presenting papers through the "Research in Human Care Science". In addition, by receiving research guidance from multiple instructors, students acquire research skills and problem-solving abilities from a broad perspective of interdisciplinary integration.</li> </ul>
Learning methods • Processes	<p>In order to achieve completion (degree acquisition) in three years, which is the standard year of study, guidance will be provided systematically and continuously according to the standard academic course flowchart. Guidance will be provided by multiple faculty members, taking advantage of the characteristics of an interdisciplinary major.</p> <ul style="list-style-type: none"> <li>• The process of obtaining a degree consists roughly of mid-term examination, preliminary examination, and final examination, and students are admitted to the degree upon passing these examinations.</li> <li>• In order to obtain a degree, the basic requirements are: (1) 12 credits, including the 6 required credits, and (2) conducting research after undergoing an ethics review. Based on the above, the course of study is as follows</li> <li>• In the first year, students formulate a research plan for their dissertation, undergo a research ethics review, and begin their research.</li> <li>• In the first and second years, the Foundation Subjects for Major "Advanced Human Care Science I-III" and "Special Lecture on Human Care Science I-III" (6 credits) are compulsory, and students acquire specialized knowledge related to human care science and related interdisciplinary knowledge.</li> <li>• In the second year and thereafter, students acquire cutting-edge knowledge and research methods in their specialized fields through Major Subjects such as "Seminar on Human Care Science" and "Research in Human Care Science".</li> <li>• Immediately after admission, at the end of each academic year, and at the time of application for dissertation review, the student is required to submit a Competence Evaluation Form (the student's own evaluation of his/her level of achievement regarding the knowledge and abilities specified in the Diploma Policy, which is confirmed by the faculty advisor).</li> <li>• The student is required to submit a record of academic guidance (a record of confirmation and guidance of academic achievements and research progress by the advisory and secondary advisor) every three months until passing the midterm review meeting.</li> <li>• After passing the midterm examination, the preliminary examination, and the dissertation examination, students are required to make a presentation at the doctoral dissertation presentation meeting held at the end of the academic year to present the results of their interdisciplinary studies.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Immediately after admission, at the end of each academic year, and at the time of application for dissertation review, the achievement of the student's knowledge and abilities specified in diploma policy are submitted in the Competence Evaluation Form, and the status of each student's achievement is checked and evaluated by the faculty members at the Major education meeting.</li> <li>• The student's academic achievements and research progress are submitted every three months in the form of a record of academic guidance, and the status of each student's academic work and research is checked and evaluated by the faculty members at the education meeting.</li> <li>• The midterm review meeting is open to the public in the degree program, and the primary examiner and two secondary examiners review the overall plan of the dissertation, logical consistency of the research content, consistency with the research ethics review, and progress of at least 50% of the overall research.</li> <li>• The preliminary review meeting is open to the public, and the same primary and two secondary examiners as in the midterm review meeting will review the quality of the dissertation, the submission of the academic paper, and whether or not to proceed to the dissertation examination.</li> </ul>



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- The dissertation examination is also open to the public, and a total of four members, including the primary examiner and two secondary examiners from the preliminary examination and one secondary examiner from outside this degree program, will conduct an appropriate review from an interdisciplinary perspective.

#### Admission Policy

Desired students      We are looking for individuals with a genuine passion for addressing the pressing challenges in human care science --locally and globally --who are eager to tackle these issues through interdisciplinary research, leveraging cutting-edge expertise and methodologies. Ideal candidates have an academic background and practical experience in human care science and related disciplines.

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Selection policy      Selection will be based on the ability to conduct research, practice, and international collaboration, and will include written examinations in specialized fields and English, as well as an oral examination based on the research plan, for a comprehensive evaluation.

## Doctoral Program in Public Health

Name of the degree to be conferred	Doctor of Philosophy in Public Health
Educational purpose	The program fosters advanced public health specialists with specialized knowledge in public health, cross-disciplinary knowledge in related fields, and research skills to solve a variety of health problems faced at a global level, such as the ultra-low birthrate and aging society.
Vision of human resources development	Individuals who have a sufficient combination of high-level specialized knowledge, interdisciplinary knowledge, and research and education skills in public health, and who contribute to public health administration and the improvement of community, school, occupational, and global health.
Diploma Policy	
The degree of Doctor of Philosophy in Public Health is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research skills: Ability to set contemporary and future research questions based on the latest expertise in the field of public health, and to carry out research plans independently.	① Can the student identify contemporary and future issues in the field of public health based on the latest expertise ② Can the student independently carry out a research plan for the research topic set
7. Expertise: Advanced and specialized knowledge in the field of public health and interdisciplinary expertise in related sciences.	① Does the student have advanced and specialized knowledge in the field of public health? ② Does the student have interdisciplinary expertise in related sciences?

8. Ethics: Ethical awareness and knowledge appropriate for a researcher in the field of public health, and in-depth ethical knowledge of the specific field of study.	① Does the student have in-depth ethical knowledge in the field of public health? ② Does the student have a sense of ethics and ethical knowledge about the specific field of their major?
9. Interdisciplinary application skills: Ability to apply interdisciplinary knowledge and skills related to public health to the solution of contemporary and future problems.	① Is the student addressing contemporary and future issues in public health from an interdisciplinary perspective? ② Is the student attempting to apply interdisciplinary and comprehensive approaches to solving contemporary and future issues in public health?

#### Dissertation evaluation criteria

After satisfying the requirements stipulated in the Graduate School Regulations of the University of Tsukuba, the dissertation review committee, consisting of one primary examiner and at least three secondary examiners, must confirm that the dissertation meets the following evaluation criteria, and the final examination must result in a passing grade.

1. In public health, which is an interdisciplinary and multidisciplinary field of study, the student must be able to develop an original and novel theme based on relevant previous research.
2. The background, objectives, methods, results, discussion, and conclusions of the research should be logically organized in the form of a dissertation.
3. To be recognized as contributing to the solution of health issues by obtaining results of high social contribution through appropriate research methods in public health.
4. The research must be fair and free from ethical problems.

#### Curriculum Policy

The program provides education and research guidance for students to learn interdisciplinary expertise in public health and to develop advanced research skills, ethics, and problem-solving abilities through a multidisciplinary cross-section of human, physical, and medical sciences in collaboration with the Doctoral Program in Human Care Science and the Graduate School in collaboration with the National Institute of Public Health.

Curriculum organization policy	<p>Students learn theories and research methods in a wide range of specialized fields related to the support of human life and health, such as pedagogy, psychology, physical education, health science, medicine, nursing, epidemiology, and statistics, through a cross-disciplinary faculty structure consisting of faculty members from the humanities, physical education, medicine and medical science, and the National Institute of Public Health. In this way, students will acquire interdisciplinary specialized research skills and problem-solving abilities related to public health from multiple perspectives of individuals, society, and the environment.</p> <ul style="list-style-type: none"> <li>• The program offers cross-disciplinary Foundation Subjects for Major ("Special Lecture", 1 unit for each course, 6 units in total, required) to study theories and research methods in a wide range of fields related to support for human life and health, and to acquire the perspective and expertise of cross-disciplinary integration.</li> <li>• In "Special Lecture on Human Care Science I, II, and III," students will gain expertise in various fields of human care science (Gerontological Nursing and Caring, Education for Human Coexistence, Clinical Psychology, Developmental Clinical Psychology, Social Psychiatry and Mental Health, and Stress Management). In "Public Health I, II, and III," students acquire expertise in the fields of public health (Global Health, Health Care Policy and Management, Health Sociology, Health Service Research, Life Support, Exercise Nutrition, Health Promotion Sciences, Environmental Health and Sciences and Health Emergency Management).</li> </ul>
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	<ul style="list-style-type: none"> <li>• In the Major Subjects ("Seminar" and "Special Research", 3 credits each, 6 credits compulsory), students acquire cutting-edge, high-level expertise in specialized fields of human care science through the Seminar in Public Health Science, and acquire high-level research methods and ethical standards for writing and presenting papers through the "Research in Public Health Science". In addition, by receiving research guidance from multiple instructors, students acquire research skills and problem-solving abilities from a broad perspective of interdisciplinary integration.</li> </ul>
Learning methods • Processes	<p>Students will receive guidance from multiple instructors in a systematic and continuous manner according to the standard course flowchart, aiming for completion (degree acquisition) in three years, the standard years of study.</p> <ul style="list-style-type: none"> <li>• In the first year, students develop a research plan for their dissertation, go through a research ethics review, and begin their research.</li> <li>• In the first and second year, students acquire specialized knowledge and interdisciplinary knowledge in public health through the Foundation Subjects for Major of "Special Lecture on Public Health I, II, III" and "Special Lecture on Human Care Science I, II, III".</li> <li>• In the second year and thereafter, students acquire cutting-edge knowledge and research methods in their specialized fields through Major Subjects such as "Seminar on Public Health" and "Research in Public Health." In addition, they receive guidance from their advisors and secondary advisors on the preparation of their dissertations, and actively make presentations at conferences and submit papers.</li> <li>• Immediately after admission, at the end of each academic year, and at the time of application for dissertation review, the student is required to submit a Competence Evaluation Form (the student's own evaluation of his/her level of achievement regarding the knowledge and abilities specified in the Diploma Policy, which is confirmed by the faculty advisor).</li> <li>• The student is required to submit a record of academic guidance (a record of confirmation and guidance of academic achievements and research progress by the advisory and secondary advisor) every three months until passing the midterm review meeting.</li> <li>• The student will make a presentation at the midterm examination, preliminary examination, dissertation examination, and doctoral dissertation presentation.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Immediately after admission, at the end of each academic year, and at the time of application for dissertation review, the achievement of the student's knowledge and abilities specified in diploma policy are submitted in the Competence Evaluation Form, and the status of each student's achievement is checked and evaluated by the faculty members at the Major education meeting.</li> <li>• The student's academic achievements and research progress are submitted every three months in the form of a record of academic guidance, and the status of each student's academic work and research is checked and evaluated by the faculty members at the Major education meeting.</li> <li>• The midterm examination is open to the public, and the primary examiner and two secondary examiners will review the overall plan of the dissertation, logical consistency of the research content, consistency with the research ethics review, and ensure that progress of at least 50% of the overall research has been made.</li> <li>• The preliminary examination is open to the public, and the primary examiner and two associate examiners at the midterm review meeting will review the quality of the dissertation, the submission of the academic paper, and whether or not to proceed to the dissertation review meeting.</li> <li>• The dissertation examination will also be open to the public, and the primary examiner and two secondary examiners from the preliminary review meeting will be joined by one secondary examiner from outside this degree program to conduct an appropriate review from a more interdisciplinary perspective.</li> </ul>

## Admission Policy

Desired students	We are looking for individuals with a genuine passion for addressing the pressing challenges in public health --locally and globally --who are eager to tackle these issues through interdisciplinary research, leveraging cutting-edge expertise and methodologies. Ideal candidates have an academic background and practical experience in public health and related disciplines.
Selection policy	Selection will be based on the ability to conduct research, practice, and international collaboration, and will include written examinations in specialized fields and English, as well as an oral examination based on the research plan, for a comprehensive evaluation.

## Doctoral Program in Sports Medicine

Name of the degree to be conferred	Doctor of Philosophy in Sports Medicine
Educational purpose	<p>To train researchers and highly-skilled professionals who can contribute to sports medicine from the following perspectives and who can be accepted internationally, as well as University faculty professors who can nurture such personnel.</p> <ul style="list-style-type: none"> <li>• Researchers and highly-skilled professionals who can contribute to the enhancement of athletic performance from a scientific perspective.</li> <li>• Researchers and highly-skilled professionals who can contribute to the maintenance and promotion of health, and the prevention and improvement of diseases by evaluating the prevention of lifestyle-related diseases and aging from a scientific perspective.</li> </ul>
Vision of human resources development	Individuals who have basic knowledge of sports and health, enhancement of athletic performance, and prevention of sports injury and disease, and who are motivated to enhance their research ability in sports medicine based on this knowledge, and who can play an active role in various related fields such as support for competitive sports and sports for health.

### Diploma Policy

The degree of Doctor of Philosophy in Sports Medicine is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research skills: Ability to conduct original research in sports medicine	① Do students have original research results in sports medicine? ② Can students be expected to contribute to the development of sports medicine?
7. Expertise: Advanced and specialized knowledge and operational skills in sports medicine	① Do students have cutting-edge and advanced expertise in sports medicine? ② Do students have research findings related to sports medicine?



8. Ethics: High ethical standards and ethical knowledge appropriate for a researcher or highly-skills professional	① Can students engage in research based on high ethical standards and ethical knowledge? ② Can students conduct research activities with integrity and responsibility?
9. Interdisciplinarity: Ability to fully demonstrate the interdisciplinary characteristics of sports medicine	① Can students engage in research that demonstrates the interdisciplinary characteristics of sports medicine? ② Do students have interdisciplinary research results in sports medicine?

#### Dissertation evaluation criteria

After satisfying the requirements prescribed in School Regulations of the University of Tsukuba, the doctoral dissertation must be approved as valid regarding the following evaluation items and judged as a pass in the final examination.

(Evaluation items)

1. Based on understanding of domestic and international research trends and previous research in related fields, the significance and position of the research in the field of sports medicine must be clearly described.
2. Appropriate amount of original research results that contribute to development of the field of sports medicine must be contained as a dissertation.
3. Reliability of research results must be sufficiently verified based on sufficient knowledge regarding research integrity.
4. Discussion for the research results must be reasonable, and the conclusions must be based on objective evidence.
5. Background, purpose, methods, results, discussion and conclusions etc. of the research must be summarized in an appropriate format as dissertation in the field of sports medicine.

(Review system, review method etc.)

1. After the doctoral dissertation is completed, a preliminary examination is held to evaluate the dissertation and determine whether or not to proceed to the final examination.
2. The final examination consists of the submission of the dissertation and a question-and-answer session, and is conducted by an examination committee consisting of the primary examiner (other than the primary advisor), two associate examiners, and at least one faculty member other than the faculty member in charge of this degree program.
3. In the field of sports medicine, the criteria for passing will be that results appropriate for the doctoral degree have been obtained and the appearance is appropriate. The examination will be opened to the public.

#### Curriculum Policy

In addition to cultivating basic knowledge and abilities, general knowledge and abilities, and sense of ethics that form the basis of sports medicine, education and research guidance will be provided to cultivate the advanced research skills necessary to independently conduct research related to sports medicine by organizing a broad curriculum in sports medicine with faculty members belonging to the physical education, medical science, and human science departments in charge of curricula that cannot be encompassed by existing fields.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• It is recommended that students take several courses from the Degree Programs' Common Courses, Interdisciplinary Courses, and Graduate General Education Courses in order to contribute to the cultivation of basic knowledge, broad perspectives, and general knowledge and abilities in related fields, with the major field of study as the axis.</li> <li>• The department offers General Foundation Subjects to learn knowledge and research methodologies in a wide range of sports medicine fields. In addition, Major Subjects will be arranged to study the latest sports medicine research and research methods.</li> <li>• Students will learn basic knowledge and research methodologies of sports medicine through "Introduction to Sports Medicine I and II" and acquire interdisciplinary and ethical perspectives.</li> <li>• Students will learn the research methods of the most advanced sports medicine research through "Sports Medicine Seminar I and II" and acquire research skills and expertise.</li> <li>• In "Sports Medicine Seminar III", students learn about cutting-edge sports medicine research and career path formation from researchers active in Japan and abroad, and acquire management skills, leadership skills, internationality, and interdisciplinarity.</li> </ul>
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	<ul style="list-style-type: none"> <li>• In "Advanced Study for Sports Medicine Research I," students learn the basics of doctoral dissertation writing and acquire the Competence of knowledge creation, management skills, communication skills, leadership skills, internationality, research skills, expertise, and ethics.</li> <li>• In "Advanced Study for Sports Medicine Research II and III," students will learn the advanced knowledge and research methods necessary to write a doctoral dissertation, and acquire the Competence of knowledge creation, communication skills, research skills, expertise, and ethics.</li> <li>• Students will acquire the Competence of knowledge creation, communication skills, internationality, research skills, expertise, and ethics through presentations at academic conferences in Japan and abroad.</li> <li>• Students will acquire the Competence of knowledge creation, internationality, research skills, expertise, and ethics by writing papers in academic journals.</li> <li>• Students will acquire leadership, management, and communication skills by planning and organizing doctoral dissertation presentations for prospective degree recipients.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• In the first year, students learn basic knowledge and abilities related to sports medicine, general knowledge and abilities, and ethics, and are required to plan a doctoral dissertation and start research. In the second year and thereafter, students will learn more specialized sports medicine and is able to be guided in their research.</li> <li>• In the first year, students take the Graduate General Education Courses "Introduction to Sports Medicine I and II" to learn the basic knowledge of sports medicine and research methodology.</li> <li>• In the first year, students take "Advanced Study for Sports Medicine Research I" to plan their doctoral dissertation. In this course, they present their research plan for the doctoral dissertation and receive research guidance from their advisors.</li> <li>• In the first and second years, students take "Sports Medicine Seminar I and II" to learn about the latest sports medicine research and research methods, and apply them to their own research.</li> <li>• In the first, second, and third years, students take "Sports Medicine Seminar III" to learn not only the latest sports medicine research but also career path formation.</li> <li>• In the "Advanced Study for Sports Medicine Research II and III" in the second and third years, students receive research guidance for their doctoral dissertations from their advisors.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• In the first year, students present their research plan for the doctoral dissertation at a research plan presentation meeting attended by their advisors.</li> <li>• After the doctoral dissertation is completed, a preliminary examination is held to evaluate the dissertation and determine whether or not to proceed to the final examination.</li> <li>• The final examination consists of the submission of the dissertation and a question-and-answer session and is conducted by an examination committee consisting of the primary examiner (other than the primary advisor), two secondary examiners, and at least one faculty member other than the faculty member in charge of this degree program.</li> <li>• In the field of sports medicine, the criteria for passing will be that results appropriate for the doctoral degree are obtained and the appearance is suitable. The examination will be opened to the public.</li> </ul>
Admission Policy	
Desired students	Students are expected to have knowledge of sports and health, athletic performance enhancement, sports injury prevention, and disease prevention, and to have a desire to enhance their research ability in sports medicine based on this knowledge, and to play an active role in related fields such as competitive sports and sports for health.
Selection policy	<ul style="list-style-type: none"> <li>• In the entrance examination, knowledge of sports medicine and willingness to study will be comprehensively evaluated through an English examination and an oral examination of past research and future research plans.</li> <li>• Although there will be no special entrance examinations or course-taking considerations for working adults, our experience has shown that working adults are generally highly motivated to learn and achieve excellent results, so we will actively accept them.</li> </ul>

## Doctoral Program in Physical Education, Health and Sport Sciences

Name of the degree to be conferred	Doctor of Philosophy in Health and Sport Sciences
Educational purpose	To foster individuals who can exercise leadership from a global perspective, with the aim of contributing to the resolution of contemporary social issues related to the fields of physical education, sports, and health sciences, and who possess the advanced abilities required to conduct outstanding research and educational activities, as well as the rich academic knowledge and practical skills to serve as the basis for such activities.
Vision of human resources development	<ul style="list-style-type: none"> <li>• Individuals who have a high level of expertise in the field of physical education, sports, health science, etc., who can demonstrate leadership in the field of physical education, sports, health science, etc.</li> <li>• In educational and research institutions in Japan and abroad, and who can formulate and implement future plans in administrative institutions and sports organizations.</li> <li>• Individuals with the ability to solve problems on a global level using cutting-edge research techniques.</li> <li>• Individuals with a bird's-eye view, flexible thinking, and the ability to work as a team with people from various fields to solve problems.</li> </ul>

### Diploma Policy

The degree of Doctor of Philosophy in Health and Sport Sciences is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in areas of physical education / sports / health science field.	① Can the student establish advanced research topics based on the latest expertise? ② Can the student independently carry out a research plan to solve the set research problem?

7. Expertise: Advanced and specialized knowledge in the field of physical education, sports, and health sciences	Has the student acquired advanced and specialized knowledge in the field of physical education, sports, and health sciences?
8. Practical ability: Ability to utilize the advanced expertise acquired as a researcher or a highly-skilled professional in the field of physical education, sports and health sciences in society	① Can the student transfer advanced and sophisticated expertise in the field of physical education, sports, and health sciences? ② Can the student apply advanced and specialized knowledge in the field of physical education, sports, and health sciences?
9. Ethics: ethics and ethical knowledge appropriate for a researcher or highly qualified professional in the physical education / sports / health science field, as well as in-depth ethical knowledge of the specific field of study	① Does the student have deep ethical knowledge in the field of physical education, sports, and health sciences? ② Does the student have a sense of ethics appropriate for researchers and advanced professionals?

#### Dissertation evaluation criteria

After satisfying the requirements stipulated in the University of Tsukuba's Graduate School Regulations, the dissertation must be judged by the dissertation review committee consisting of at least one primary examiner and three secondary examiners to be appropriate for the following evaluation items and to pass the final examination consisting of an oral presentation on the dissertation and questions.

(Evaluation items)

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in physical education science field is clearly described.
2. The doctoral dissertation should contain an appropriate amount of advanced and original research results that contribute to the development of the international field of physical education science.
3. Reliability of research outcomes have been multi sided verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as doctoral dissertation in the field of physical education science.

#### Curriculum Policy

The Doctoral Program in Physical Education, Health and Sport Sciences is a degree program that provides a higher level of education and research guidance in sports culture and management policy, health and sports education, health fitness, and coaching science. In order to cultivate individuals with outstanding teaching and practical skills in the field of physical education, sports, and health science, who can exercise leadership from a global perspective, the following two course models are provided for education and research guidance.

- Standard course model: Education and research guidance will be provided to enable students to acquire a broad range of basic knowledge (Foundation Subjects for Major) and advanced specialized knowledge (Major Subjects: applied research subjects) in the fields of physical education, sports, and health science, as well as the ability to work as a team with people from various fields to solve problems (Major Subjects: practical research subjects) and the ability to solve problems from a global perspective (Major Subjects: international research subjects).
- Next Generation Health and Sports Science Course Model: Students will acquire a wide range of basic knowledge (Foundation Subjects for Major) and advanced specialized knowledge (Major Subjects: research application subjects) in the fields of physical education, sports, and health science, as well as the ability to solve problems by teaming up with people in "practical fields" such as industries, regions, and athletic organizations (Major Subjects: research practice subjects). In addition, education and research guidance will be provided so that students can acquire the ability to solve problems by teaming up with people in "practical fields" such as industries, regions, and athletic organizations (Major Subjects: Practical Research subjects) and the ability to solve problems from a global perspective (Major Subjects: International Research subjects).

Curriculum organization policy	<p>It is recommended that students take at least 3 credits from Degree Programs' Common Courses, Inter-disciplinary Foundation Courses, and Graduate General Education Courses to contribute to their cultivation of basic knowledge, broad perspectives, and general knowledge and abilities in related fields, based on the subjects in the Doctoral Program in Physical Education, Health and Sport Sciences listed below.</p> <ul style="list-style-type: none"> <li>• To acquire the ability to create new knowledge through "Research Methodology I" and "Seminar in Human Performance and Sport Sciences I".</li> <li>• To acquire the ability to discover issues from a bird's eye view and to plan and implement measures to solve them through "Research Methodology II" and "Project Forum I and II".</li> <li>• To acquire the ability to communicate the essence of academic results in a positive and easy-to-understand manner through "Research Sessions" and "Global Intensive Debate I".</li> <li>• Students will acquire the ability to demonstrate leadership and achieve their goals through "Research Methodology II," "Project Forum," and "Experience in Assisting the Management of Domestic and International Conferences.</li> <li>• Students will acquire a high level of awareness and motivation to work internationally and contribute to the international community through "Global Intensive Debate I and II," "International Forum I and II," "Presentations at International Conferences," and "Discussions at International Seminars".</li> <li>• Students will acquire the ability to carry out their research plans independently through "Research Methodology I," "Research Sessions," and "Guidance for Dissertation Preparation.</li> <li>• Students will acquire the ability to use their advanced specialized knowledge in society through "Seminar in Human Performance and Sport Sciences II" and other courses.</li> <li>• To acquire in-depth ethical knowledge through "Research Methodology I" and "Research Session".</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• In the first year, "Research Methodology I" and "Research Session" are compulsory to acquire a wide range of basic research and practical skills.</li> <li>• In the first year, "Seminar in Human Performance and Sport Sciences I" (throughout the year) is compulsory for students to learn the applied aspects of research.</li> <li>• In the first year, the students are required to present their research plans at the Research Debriefing Session I and reexamine the issues to be addressed before obtaining their degrees. In addition, the guidance system will be finalized.</li> <li>• In the first year, in the next-generation health and sports science course model, practical fields (schools, competitions, regions, companies) and social issues are the setting.</li> <li>• In the second year, "Seminar in Human Performance and Sport Sciences II" is compulsory, and "Problem-Based Research I and II" will help students acquire more advanced research and practical skills.</li> <li>• In the second year, students are required to present their research at domestic and international conferences to receive external evaluations and guidance on their research activities toward their degree dissertation.</li> <li>• In the second year, students in the next-generation health and sports science course model are required to write a practical report.</li> <li>• In the third year, students are required to present the progress of their research at the research debriefing session II and reconsider the issues to be addressed in preparation of the dissertation.</li> <li>• In the third year, a preliminary examination will be held under the guidance of three academic advisors within the department and one academic advisor outside the department.</li> <li>• In the third year, a dissertation review committee will review the dissertation.</li> </ul>



Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Competence of knowledge creation: Evaluate whether the student has research results that can be regarded as the creation of new knowledge, and whether the student can be expected to create knowledge that will contribute to the future of human society.</li> <li>• Management competence: Evaluate whether the student can make long-term plans for issues and implement them, and whether the student has the ability to solve problems from a bird's-eye view outside of his/her field of expertise.</li> <li>• Communication skills: Ability to explain logically to researchers and non-researchers in different fields, and the ability to proactively communicate one's research results to researchers in one's field.</li> <li>• Leadership skills: Ability to set attractive and persuasive goals, establish a system, and achieve objectives as a leader will be evaluated.</li> <li>• Internationalization: The student's awareness of and willingness to engage in international activities, as well as the language skills necessary to gather and act on international information will be evaluated.</li> <li>• Research ability: Evaluation of whether the student is able to set up an advanced research topic based on his/her specialized knowledge and whether he/she is able to carry out a research plan to solve the set research topic.</li> <li>• Expertise: Evaluation of whether the student has acquired advanced and specialized knowledge in the field of physical education, sports, and health science.</li> <li>• Practical ability: Evaluation of whether the student is able to transfer advanced and highly specialized knowledge, and whether the student is able to apply advanced and highly specialized knowledge.</li> <li>• Ethics: Evaluation of whether the student has a deep ethical knowledge of the field of physical education, sports, and health sciences, and whether the student has a sense of ethics appropriate for a researcher or advanced professional.</li> </ul> <ol style="list-style-type: none"> <li>① Interdisciplinarity: Barriers between cutting-edge academic disciplines: establishment of cross-disciplinary individual curricula necessary for problem solving.</li> <li>② Practicality: Barriers between basic research and applied practice: PBR-based education with a focus on promoting research projects.</li> <li>③ Internationalization: Barriers to industry-academia-regional-international collaboration: Research and education system that utilizes collaboration with the world's most advanced organizations.</li> </ol>
Admission Policy	
Desired students	We seek individuals who have a high interest in various phenomena related to physical education, health, and sports based on their experience in sports activities and exercise instruction, and who are passionate about promoting research and disclosing the results to solve various problems derived from the research, acquiring the knowledge and skills necessary as educators and researchers, and working together to tackle social issues.
Selection policy	<ul style="list-style-type: none"> <li>• Students will take an oral examination based on their research outline and research plan to evaluate their basic abilities as a researcher and their ability to obtain a degree within the standard course period.</li> <li>• Students will be assessed on their ability to communicate information internationally based on external English tests (TOEFL, TOEIC). After admission, students who are allowed to take the Next Generation Health and Sports Science Course Model will be selected separately.</li> </ul>



## Doctoral Program in Coaching Science

Name of the degree to be conferred	Doctor of Philosophy in Coaching Science
Educational purpose	This program fosters researchers, university faculty members, and highly-skilled professionals who can lead research and education in coaching studies by cultivating advanced research skills and coaching practice in the coaching field with an international perspective and high ethical standards.
Vision of human resources development	An individual who has the creative intellect and humanity to solve complex coaching problems in a globalized world in collaboration with practitioners.
Diploma Policy	
The degree of Doctor of Philosophy in Coaching Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research management skills: Ability to understand the body of expertise in the field of coaching studies and to plan and conduct research independently.	① Has the student gained an in-depth understanding of research in coaching studies? ② Does the student have a deep understanding of how to disseminate knowledge that contributes to coaching in the new era as an independent researcher?
7. Ability to promote practice research: Ability to understand the structure of practice skills in coaching and to communicate them rationally	① Has the student developed the ability to report individual case studies on coaching practice in an easily understood manner? ② Has the student acquired the ability to interpret the essence of individual cases and promote case studies?
8. Creativity: The ability to create new knowledge that can contribute to the development of the field of coaching.	① Can the student explain their research results in an easy-to-understand and logical manner to researchers in different fields? ② Can the student appropriately communicate their research findings to researchers in their field and accurately answer questions?

9. Practical coaching skills: Ability to synthesize expertise in the field of coaching studies to carry out rational coaching.	① Has the student developed the ability to synthesize the knowledge created in coaching studies? ② Has the student acquired the ability to reflect on their coaching practice activities and disseminate practical knowledge that contributes to the construction of coaching studies?
10. Integrity: Ability to discuss and teach in depth about the philosophy and ethics of coaching	① Has the student acquired the ethical knowledge appropriate for a researcher in the field of coaching studies? ② Can the student develop the ethics appropriate for a new era of coaching and pass them on to other coaches?

#### Dissertation evaluation criteria

After satisfying the requirements stipulated in the University of Tsukuba's Graduate School Regulations, the dissertation must be judged as acceptable with the following two criteria confirmed by the final examination.

1. The dissertation must contain sufficient new academic knowledge in the field of coaching studies.
2. The applicant must have the high level of research skills necessary to work as an independent researcher in the field of coaching studies.

(Evaluation items)

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in coaching studies is clearly described.
2. Right amount of original research outcomes that contribute to development of coaching studies area is contained as master's thesis.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as master's thesis of the coaching studies.

(Review system)

The Dissertation Examination Committee, which shall be established to review doctoral dissertations, etc., shall consist of one primary examiner and at least three secondary examiners.

1. The primary examiner shall be the faculty member in charge of research guidance in the research group.
2. The primary examiner and the secondary examiner must have a doctoral degree. However, up to one secondary examiner who does not have a doctoral degree may be admitted as an exception.
3. At least one of the examiners shall be elected from outside the Doctoral Program in Coaching Science. A person may be a member of another research group at a graduate school of the University, a graduate teacher at another university, or a person who is recognized by the Doctoral Program in Coaching Science Education Council as having research achievements equal to or greater than those of another research group.

#### Curriculum Policy

Coaching Studies are a theory that systematizes the goals, principles, methods, and plans of training, mainly in competitive sports, and has emerged mainly in Eastern Europe since the 1950s, and has been studied internationally since then.

Coaching studies also forms a unique area in international sporting societies as coaching study or coaching science, and the doctoral degree title (Coaching studies) (Ph.D. in Coaching Science) will be recognized as an internationally accepted title.

This degree program provides education and research guidance to cultivate research skills, expertise, and ethics in the six areas of General Coaching Studies, Theory and Methodology of Training for Sporting Excellence, Movement Theory of Sport, Individual Coaching Studies (Individuals), Individual Coaching Studies (Ball Sports), and Individual Coaching Studies (Martial Arts), as well as a broad basic background in integrated human sciences, a broad perspective, and general-purpose knowledge and abilities that support activities in a variety of social settings.

Curriculum organization policy	The degree program will be taught and researched by faculty members who have both advanced research skills and experience in coaching international athletes and teams. • This course is designed for students who wish to acquire the Competence of knowledge creation, communication skills, and research management skills through "Coaching Science Research Method I" (Major Subjects).
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	<ul style="list-style-type: none"> <li>• This course is designed for students who wish to acquire management skills, leadership skills, the ability to promote practical research, and creativity through "Coaching Science Research Method II" (Major Subjects).</li> <li>• Students will acquire the ability to promote practical research, creativity, and coaching practice through the "Case Study Methods of Coaching Science" (Major Subjects).</li> <li>• Students will acquire internationalism, creativity, and integrity through "Philosophy and Ethics of Coaching" (Major Subjects).</li> <li>• Students will acquire communication skills and the ability to promote practical research through the "Coaching Case Study Debriefing".</li> <li>• Students will comprehensively acquire the Competence of knowledge creation, management skills, communication skills, and research management skills through research seminars 1-3, conference presentations 1-3, dissertation submission 1-2, research debriefing sessions, preliminary examination sessions, and dissertation examination sessions.</li> <li>• Students will acquire international and creative skills through the Doctoral Program in Coaching Science overseas exchange program.</li> <li>• Students will acquire leadership and coaching skills through practical coaching activities.</li> <li>• Students who have completed a master's program other than physical education will take about 10 credits from the courses offered by the Master's Program in Physical Education, Health and Sport Sciences to acquire specialized knowledge that will serve as the basis for their research, mainly in the first year.</li> </ul> <p>In addition, it is recommended that students take 2 credits from the Degree Programs' Common Courses, Inter-disciplinary Foundation Courses, and Graduate General Education Courses in order to contribute to the cultivation of basic knowledge, broad perspectives, and general knowledge and abilities in related fields, with the major field of study as the axis.</p>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• The faculty members in charge of this degree program are those who are active as domestic and international leaders in the field of coaching and who are recognized as having extremely high educational and research leadership abilities.</li> <li>• Research guidance for the doctoral dissertation will be provided mainly by an advisory committee consisting of three or more faculty members in charge of this degree program.</li> <li>• The advisory committee encourages the advisory students to actively participate in projects, international competitions, international seminars, etc. organized by various sports organizations, etc., and supports them in improving their practical skills and communication skills related to coaching.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Complete 4 credits of required courses.</li> <li>• At least 2 reviewed papers</li> <li>• At least 3 presentations at related conferences</li> <li>• Successful review in coaching case study debriefing</li> <li>• Successful completion of the research debriefing and preliminary examination</li> <li>• Pass the dissertation review by the Doctoral Dissertation review committee (The Doctoral Dissertation review committee consists of at least four faculty members, including faculty members who are not in charge of the educational program of this degree program)</li> </ul>
Admission Policy	
Desired students	We are seeking individuals who have a history of competing or coaching at a certain level or above, and who have high aspirations to earnestly seek solutions to various issues related to coaching through research. In addition, we are looking for individuals who are passionate about working with the world in mind.
Selection policy	<p>Selection will be made based on the following total scores (500 points).</p> <ul style="list-style-type: none"> <li>• Document Screening (200 points)</li> <li>• English (100 points)</li> <li>• Oral examination (200 points)</li> </ul>

## Doctoral Program in Sport and Wellness Promotion

Name of the degree to be conferred	Doctor of Sport and Wellness Promotion
Educational purpose	For those who have already obtained a master's degree and are active in the field of sports or wellness, the program fosters further research and analytical skills, as well as the ability to solve problems in this field by cultivating negotiation skills and advanced practical management skills in Japan and abroad. In other words, the program fosters advanced professionals who possess doctoral-level advanced research skills, as well as the policy, project execution, and management skills to solve difficult problems that require innovation.
Vision of human resources development	Individuals who can successfully manage projects to solve difficult issues in the field of sports wellness in Japan and overseas, and produce a certain level of results.
Diploma Policy	
The degree of Doctor of Sport and Wellness Promotion is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research ability: Ability to set leading-edge research tasks based on up-to-date specialized knowledge and carry out a research plan independently in areas of sports wellness.	① Can the student develop and prepare an advanced research plan in the field of sports wellness? ② Can the student complete and present a doctoral dissertation with advanced research results in the field of sports wellness?
7. Specialized knowledge: Leading-edge and advanced specialized knowledge and command areas of sports wellness	Can the student acquire and apply advanced and specialized knowledge in the field of sports wellness?

8. Ethics: ethics and ethical knowledge appropriate for a researcher or highly qualified professional in the sports wellness field, as well as in-depth ethical knowledge of the specific field of study	Has the student acquired advanced research skills, ethics, and in-depth ethical knowledge in the field of sports wellness?
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#### Dissertation evaluation criteria

Level standards required for the degree thesis

After satisfying the requirements stipulated in the University of Tsukuba's Graduate School Regulations, the dissertation must be judged as passing if the following five evaluation items are found to be valid and the following two criteria are satisfied by the examination.

1. A basic understanding of principles and methods
  2. Ability to plan, develop, and analyze basic policies and strategies
  3. Ability to assess and systematize necessary resources
  4. Ability to manage systems effectively and efficiently
  5. Ability to develop new comprehensive programs that anticipate social changes
1. The dissertation must contain sufficient new academic knowledge in the field of sports wellness.
  2. The applicant must have the high level of research skills necessary to work as an independent researcher in the field of sports wellness.

Review board members : The Dissertation Examination Committee, which shall be established to review doctoral dissertations, etc., shall consist of one primary examiner and at least three secondary examiners.

Review method and review items, etc: Doctoral dissertation, preliminary examination, and final examination (presentation and oral examination) will be used to make a comprehensive judgment.

#### Curriculum Policy

The curriculum is designed to foster the ability to solve problems with a bird's-eye view, flexible thinking, and teamwork with people from various fields, as well as the ability to solve problems on a global level using cutting-edge research methods.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Competence of knowledge creation: To be acquired in the following courses: Problem Solving Type Data Analysis Special Lecture 1, Problem Solving Type Data Analysis Special Lecture 2, Sport and Wellness Seminar I, Sport and Wellness Seminar II, Sport and Wellness Seminar III.</li> <li>• Management skills: Acquired in Sport and Wellness Seminar I, Sport and Wellness Seminar II, Sport and Wellness Seminar III, Problem Solving Project Work I, Problem Solving Project Work II, etc.</li> <li>• Communication skills: Acquired through Sport and Wellness Seminar I, Sport and Wellness Seminar II, Sport and Wellness Seminar III, Problem Solving Project Work I, Problem Solving Project Work II, conference presentations, etc.</li> <li>• Leadership skills: To be acquired through Sport and Wellness Seminar I, Sport and Wellness Seminar II, Sport and Wellness Seminar III, Problem Solving Project Work I, Problem Solving Project Work II, etc.</li> <li>• Internationalization: Acquired through Sport and Wellness Seminar II, Sport and Wellness Seminar III, and presentations at international conferences.</li> <li>• Research skills: acquired through Problem Solving Type Data Analysis Special Lecture 1 and 2, Sport and Wellness Seminar I, II, and III, presentations at domestic and international conferences, dissertation presentations, and doctoral dissertations.</li> <li>• Students are expected to acquire specialized knowledge through the following: Problem Solving Type Data Analysis Special Lecture 1 and 2, Sport and Wellness Seminar I, II, and III, and participation in academic conferences and workshops organized by academic societies.</li> <li>• Ethics: acquired through Sport and Wellness Seminar I, II, and III, and participation in ethics seminars. Furthermore, centering on students' majors, in order to contribute to cultivating basic knowledge and wide view, generic competences in relevant areas, it shall be recommended to take one credit from Inter-disciplinary Foundation Courses.</li> </ul>
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Learning methods · Processes	<ul style="list-style-type: none"> <li>• A total of two credits will be taken in the first year as a Foundation Subjects for Major. In Problem Solving Type Data Analysis Special Lecture 1, students will acquire analytical methods and research design skills for data in the natural and social sciences, and in 2, students will enhance their ability to analyze big data.</li> <li>• Students are required to take three units of Major Subjects: "Sport and Wellness Seminar I," "Sport and Wellness Seminar II," and "Sport and Wellness Seminar III."</li> </ul> <p>In Seminar I (first year), students will present their research at the Midterm Report Meeting I. In Seminar II (second year), students will present their research at the Midterm Report Meeting II. In Seminar III (third year), students will receive credit for their presentations at the Preliminary Examination and Doctoral Dissertation Examination, as well as for the guidance provided by the advisory group faculty from inside and outside of Japan in the process leading up to these presentations. Students are judged to have passed or failed the midterm debriefing I and II and the preliminary examination in order to proceed to the next stage. In addition, students are required to make at least one presentation at an international conference or conduct research overseas between the first and third year. The international conference must be approved by the Dissertation review committee.</p> <ul style="list-style-type: none"> <li>• Students are required to take a total of 3 credits of "Problem Solving Project Work I" and "Problem Solving Project Work II" as Major Subjects.</li> </ul> <p>In the field of sports, students will gain experience and training to apply the knowledge and abilities they have learned in practice at government agencies, local governments, sports governing bodies, athletic organizations, and other organizations involved in sports, and in the field of wellness, at government agencies, local governments, NPOs, private organizations, and other organizations involved in health promotion. The program consists of three stages: pre-planning, fieldwork, and post-event reporting (report writing and presentation).</p> <p>Students will earn 8 credits for the above required courses.</p> <ul style="list-style-type: none"> <li>• A multi-advising system (one research advisor and two mentors, one of whom is a visiting faculty member) will be established for each student. The research advisor and mentor teachers will be in charge of guiding the student from the time of admission and will be responsible for setting up an individual course plan and providing general educational guidance. The research advisor is in charge of the doctoral dissertation and Problem Solving Project Work.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• In the midterm review meeting, the content of the research presentation is peer evaluated by the participants, and the advisor evaluates whether the presentation has prospects for completion as a dissertation. The content of the presentation in debriefing session I is evaluated to be at the level to proceed to Seminar II, and the content of the presentation in debriefing session II is evaluated to be at the level to proceed to Seminar III.</li> <li>• The evaluation of the Problem Solving Project Work will be conducted through preliminary planning, fieldwork, and post-project reporting (report writing and presentation). For the presentation, after presenting, there will be a question-and-answer session with the primary advisor, two secondary advisors, external advisor, and participants.</li> <li>• After the doctoral dissertation is completed, a preliminary examination is held to evaluate the dissertation and determine whether or not to proceed to the final examination. The preliminary examination committee shall consist of at least three members, including the advisor.</li> <li>• The final examination consists of the submission of the dissertation and questions and answers about it. The Dissertation Examination Committee shall consist of one primary examiner and at least three secondary examiners. At least one member of the review committee should be selected from outside the degree program.</li> <li>• Students will be judged on whether their work is academically and socially meaningful in the field of sports wellness and suitable for the awarding of the degree.</li> </ul>



## Admission Policy

Desired students	The applicant should have research achievements (master's degree) related to the field of physical education or health science, at least two years of working experience in the field of sports promotion or wellness promotion, and the language and communication skills to promote international management.
Selection policy	The first stage of the selection process is a document review, and the second stage is an oral examination to assess the applicant's expertise. The total score is 80 points for the document review, 40 points for the foreign language examination (TOEIC score), and 80 points for the oral examination.

## Doctoral Program in Art

Name of the degree to be conferred	Doctor of Philosophy in Art
Educational purpose	This program fosters researchers with creative research skills in art and design who can contribute to various areas of society, such as public institutions and corporations, through their outstanding specialized knowledge and practical skills, and university teachers with solid educational and research skills.
Vision of human resources development	Individuals who will play a leading role in research and education across various sectors of society, including educational institutions, governmental organizations, and companies, both domestically and internationally, by leveraging their broad knowledge of art and design, advanced research and development skills, and practical abilities.
Diploma Policy	
The degree of Doctor of Philosophy in Art is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Originality: Ability to conduct original research with a certain academic significance in the field of art and design	① Has the student discovered an original problem or solution in the field of art or design? ② Has the student conducted the research with a unique perspective not found in previous research?
7. Application skills: Ability to use or propose reliable academic methodologies in the field of art and design	① Did the student use a recognized and reliable academic methodology in the field of art or design? ② Has the student proposed and evidenced a new and useful academic methodology?

8. Development skills: Ability to draw new, useful, and reliable conclusions that contribute to academic progress in the field of art and design	① Has the student set an issue that expands the horizons of the field of art or design in order to contribute to academic progress? ② Has the student set a new task or goal and derived new and useful insights?
9. Developmental skills: Capable to foresee the potential for research development that contributes to academic progress in the field of art and design	① Has the student set an issue that has potential for development in order to contribute to academic progress in the field of art or design? ② Has the student drawn conclusions that can be expected to lead to future research?

#### Dissertation evaluation criteria

The dissertation must meet the requirements stipulated in the University of Tsukuba Graduate School Regulations as a standard to be met, the dissertation must be recognized as appropriate for the following evaluation items, and the final examination must be judged as passing.

1. Based on understanding of research trend in and outside Japan preceding research in relevant area, the significance and positioning of the said research in the field of art and design is clearly described.
2. Right amount of original research outcomes that contribute to development of the field of art and design area is contained as doctor's thesis.
3. Reliability of research outcomes have been sufficiently verified based on sufficient knowledge regarding research integrity.
4. Consideration for the research outcomes is reasonable and their conclusions are based on objective grounds.
5. Background, purpose, method, results and conclusions etc. of the research shall be summarized in an appropriate form as master's thesis of the department of arts.

The dissertation review committee shall consist of at least four members: one primary examiner and at least three secondary examiners. During the examination, at least two oral examinations and a public presentation are conducted, and a final examination is taken. Those who wish to apply for a dissertation review must pass a preliminary examination in the degree program in advance.

#### Curriculum Policy

The Doctoral Program in Art delivers specialized research in various fields of art and design, while also developing studies that enhance interdisciplinarity through collaboration with adjacent fields. Primary and secondary advisors provide individualized guidance and advice on writing doctoral dissertations, and all faculty members participate in instruction and evaluation through the courses "Advanced Seminar: Theory of Art I and II." This process fosters the competence and practical skills necessary for presenting peer-reviewed research at domestic and international conferences and for submitting refereed papers to academic journals.

Curriculum organization policy	• Through the "Advanced Seminar: Theory of Art I and II" (compulsory), students will acquire the following competencies: 1. Competence of knowledge creation, 2. management skills, 3. communication skills, 4. leadership skills, and 5. internationality.
Learning methods • Processes	• In each year, individual guidance will be provided by the primary and secondary advisor. • In each year, students will submit a "research plan" and a "report on the results of research guidance". • In each year, those whose main research area is the production of artworks will exhibit their research results to the public. • In the first and second years, "Advanced Seminar: Theory of Art I and II" will be held each semester, and oral examinations will be given by several teachers. • In the third year, the preliminary examination is conducted by the Preliminary Examination Committee. • In the third year, the Dissertation Review Committee will conduct the final examination and the review of the doctoral dissertation.

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• In each year, individual guidance will be provided by the primary and secondary advisor, and academic achievements will be evaluated.</li> <li>• In each year, the results of the study will be evaluated through the "Research Plan" and "Report on the Results of Research Guidance".</li> <li>• In each year, students whose main area of research is the creation of artworks will have their research results exhibited to the public, and the results of their studies will be evaluated.</li> <li>• In the first and second years, "Advanced Seminar: Theory of Art I and II" will be held each semester, and students will be graded through oral examinations by multiple instructors to evaluate their academic achievements.</li> <li>• In the third year, the Preliminary Examination Committee confirms the prescribed requirements and examines the dissertation.</li> <li>• In the third year, the Dissertation Review Committee will conduct the final examination and dissertation review. Completion is determined by two or more oral examinations and open research presentations.</li> </ul>
Admission Policy	
Desired students	In the case of theoretical research, we seek individuals with a deep understanding of and sensitivity to art, as well as knowledge of specialized fields and the ability to conduct intellectual research. In the case of theoretical research, we seek candidates with knowledge of specialized fields, the ability to conduct intellectual research, and a deep understanding of and sensitivity to art.
Selection policy	An oral examination will be conducted on the contents of the master's dissertation or equivalent research and the research plan after admission. Based on this, a question-and-answer session will be held regarding the area of specialization.

## Doctoral Program in Design

Name of the degree to be conferred	Doctor of Philosophy in Design
Educational purpose	This program aims to acquire the practical ability to create products and environments that improve people's minds, to create social systems that create connections between people and make them bright and fulfilling, and to foster researchers who have the qualities of international top leaders and who play a central role in diverse research and educational institutions, including industry and government, who can utilize their creativity to nurture, maintain, and regenerate rich and constructive communities and societies.
Vision of human resources development	Individuals who are willing to practice cross-disciplinary, practical, and international study, propose solutions to problems that transcend regional and cultural barriers, have the tenacity to produce results, and possess discernment (ability to identify issues), breakthrough ability (planning ability, logical persuasiveness), and the ability to complete tasks to carry out specialized research.

### Diploma Policy

The degree of Doctor of Philosophy in Design is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Conceptual and thinking skills: Ability to identify advanced issues (discernment) and develop professional research plans	Has the student acquired the ability to plan and carry out research and production using a high level of problem identification skills, as well as familiarity with the details of specialized problems?
7. Analytical skills: Advanced problem analysis skills to solve problems from a broad perspective with a high level of vision	① Has the student acquired a high level of professional problem analysis skills to conduct advanced and excellent research in their field? ② Has the student acquired the ability to analyze comprehensive design issues from a wide range of disciplines and a high level of specialized knowledge?

8. Solution skills: Ability to create new solutions and propose the results to society and academia, supported by high-level professional skills.	Has the student acquired advanced problem-solving skills (ability to complete tasks) and strong breakthrough ability (planning ability) through research for their doctoral dissertations, internships, and other research practices?
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#### Dissertation evaluation criteria

After satisfying the course requirements stipulated in the Graduate School Regulations of the University of Tsukuba, the student must write a doctoral dissertation in which they set and analyze a complex research problem in design studies or a related field on their own, and summarize the qualities and abilities that enable them to draw an objective conclusion through logical thinking based on the facts obtained.

The dissertation review committee shall consist of the main examiner and at least three associate examiners, who shall examine the dissertation through an oral examination.

1. The student must have the ability to construct theories based on specialized and interdisciplinary knowledge of design studies and disseminate them to society.
2. The student must possess the highest level of specialized knowledge and skills in design, and have the ability to promote research on design in a logical and scientific manner.
3. The student must have the ability to lead human resource development and academic activities at educational and research institutions in Japan and abroad based on a deep knowledge of design studies.

#### Curriculum Policy

The Doctoral Program in Design fosters the ability to identify high-level professional issues (discernment), the ability to plan research from a broad perspective by combining professional and comprehensive methodologies, the ability to conduct research, the ability to complete research, the ability to logically persuade others, and the ability to communicate and make proposals internationally, in order to carry out research on a variety of designs related to industry and society, including products, planning, entertainment, composition, architecture, and spatial planning. Specifically, in addition to the various fields of design, including composition, sensitivity science, and visual psychology, faculty members from related fields such as systems information technology, environmental engineering, physiology, ergonomics, and disability science will provide cross-disciplinary and practical training courses.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Students will acquire comprehensive research planning, implementation, and completion skills through special research in design studies.</li> <li>• Students are encouraged to acquire interdisciplinary knowledge and a broad range of design knowledge through the Graduate General Education Courses and Interdisciplinary Foundation Courses.</li> <li>• Students will acquire practical problem identification, planning, and persuasion skills through special research in design studies and internships.</li> <li>• Students will acquire international negotiation and network building skills for successful design, design, and planning through special research in design studies and overseas training.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• In the first year, students submit a "Research Plan Form" and are assigned a primary and secondary advisor according to the content of their research.</li> <li>• In the first and second years, students take special research courses set for each semester, and their progress is checked through presentations at the end of each semester.</li> <li>• Students take internships and overseas training courses systematically to deepen their ability to apply research and international expansion.</li> <li>• Students receive midterm guidance for their doctoral dissertations during their second year, and submit their doctoral dissertations in October of their third year.</li> </ul>



Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• At the end of the spring semester of the first year, all research advisors will hold a research plan presentation to confirm research policy and provide guidance.</li> <li>• At the end of the spring semester of the second year, the second-stage achievement review, including a public presentation, will be conducted to check academic progress and provide guidance.</li> <li>• At the end of the spring semester of the third year, the third-stage achievement examination (also serving as a preliminary examination), including the presentation of the doctoral dissertation (not open to the public), will be conducted to confirm the status of study and provide guidance for the final achievement examination.</li> <li>• After passing the third stage achievement review, a public presentation will be held for the submitted dissertation, and the dissertation review committee consisting of at least three primary and secondary examiners will review the doctoral dissertation.</li> </ul>
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#### Admission Policy

Desired students	We seek individuals with research achievements in design or fields related to design, and those who have talents and motivated to theoretically solve design problems that transcend regional and cultural barriers, and individuals who are willing to constantly challenge themselves to create new research problems and develop the tenacity to produce results.
Selection policy	In the selection process, academic CVs, academic standards and abilities are evaluated based on the submitted documents, and professional aptitude will be assessed through oral examinations in specialized fields so that applicants from various research and educational fields as well as those with excellent expressive skills in design can apply.

## Doctoral Program in Heritage Studies

Name of the degree to be conferred	Doctor of Philosophy in Heritage Studies
Educational purpose	This program fosters individuals to comprehensively understand the social and international roles of the world's cultural and natural heritage in relation to the agenda of international society and international governance aimed at achieving sustainability of the global environment and human society, to analyze the location of problems facing heritage in relation to political, economic, social, and natural factors, and to develop researchers and university teachers of world heritage studies and highly skilled professionals who will become top leaders in the world with a high level of ability to research theories and techniques for solving such problems.
Vision of human resources development	The program fosters individuals with a clear will and attitude to contribute to the world in the protection of the world's cultural and natural heritage, a sense of ethics, communication and negotiation skills that can be applied to discussions in the international community, especially in international organizations, the ability to accurately grasp the needs of the international community and solve problems, and the ability to become researchers and educators in world heritage studies who can pass on the world's cultural and natural heritage to future generations.
Diploma Policy	
The degree of Doctor of Philosophy in Heritage Studies is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. The ability to develop co-notification	Does the student intend to contribute to society by developing a wide range of research results on the conservation of cultural and natural heritage?

7. Ability to create specialized knowledge: Ability to create and use advanced knowledge about cultural and natural heritage	Is the student trying to make use of the results of their specialized research on the conservation of cultural and natural heritage for the benefit of society?
8. Ability to develop common skills	Can the student develop their research results and work on problem solving for the conservation of cultural and natural heritage?
9. Capacity to develop professional skills: Ability to find solutions to professional challenges in the protection of cultural and natural heritage	Can the student develop professional solutions and engage in problem solving for the conservation of cultural and natural heritage?
10. International development capacity: Awareness of and willingness to address international issues in the protection of cultural and natural heritage	Has the student acquired a high level of motivation and sufficient language skills to contribute to the international community for the conservation of cultural and natural heritage?

#### Dissertation evaluation criteria

##### (Doctoral dissertation review)

1. The Preliminary Review committee consists of at least four members: one primary examiner and at least three secondary examiners, with the primary examiner being a full-time faculty member of the Doctoral Program in Heritage Studies. The Preliminary Review committee shall meet at least once for each dissertation submitted, and if all members of the committee unanimously agree that the applicant is able to submit the dissertation within 12 months, the decision will be "Acceptable"; otherwise, the decision will be "Negative".
2. The dissertation review committee shall consist of at least four members: one primary examiner and at least three secondary examiners, with the primary examiner being a full-time faculty member of the Doctoral Program in Heritage Studies. The dissertation review committee shall meet at least once for each submitted dissertation, examine the dissertation in public, and make a pass/fail decision. In principle, there shall be at least one week's notice period between the announcement of the open review and its implementation.
3. After the decision by the doctoral dissertation review committee is completed, the primary examiner of the doctoral dissertation review committee shall promptly report the results to the Doctoral Program in Heritage Studies Education Council and to the steering committee of the Faculty of Human Sciences through the degree program leader.

##### (Evaluation criteria)

1. Appropriate theme for a dissertation in World Heritage Studies (problem and issue setting)
2. Clear positioning of the paper based on prior research (research positioning)
3. Research methods appropriate to the subject are selected and the grounds for the selection are credible (Reliability of research methods and arguments).
4. The argument has been sufficiently developed and there is no major contradiction overall (Structure of the paper)
5. No ethical issues in the conduct of the study and the publication of the results (ethics)

##### (Evaluation items)

1. Originality: Novelty of either the concepts and methods introduced or the facts and laws discovered. Includes improvement of a known method, application from a different field, etc.
2. Budding potential: Research that is at the beginning of the research process, but is based on new ideas and concepts and has great potential for future development.
3. Inventiveness: It can clarify new facts that may change conventional theories, or to develop new research areas, research and technology systems.
4. Usefulness: Can provide useful information that is useful for improving technology or for practical or academic purposes.

## Curriculum Policy

In order to respond to social and international needs for the protection of World Heritage, a practical and interdisciplinary course of study is organized to foster researchers who conduct advanced research on heritage protection, and program officers who are engaged in heritage protection with advanced knowledge and professional skills in domestic and international heritage protection sites and international organizations.

Curriculum organization policy	The curriculum consists of nine areas, "Cultural Heritage Policy and Administration," "Natural Heritage and Nature Conservation," "Heritage Development," "Tourism Planning," "Landscape Planning," "Architectural Heritage," "Art Heritage," "Conservation Science," and "International Heritage Studies," with the aim of fostering researchers who conduct advanced research on heritage protection and program officers who are engaged in heritage protection with advanced academic knowledge and professional skills in the field of heritage protection in Japan and abroad, and in international organizations.
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Learning methods • Processes	<ul style="list-style-type: none"><li>• In each academic year, students participate in special research in their area of specialization and receive guidance from their academic advisor.</li><li>• In the fall semester of the second year, students will make a midterm presentation of their doctoral dissertation in front of all faculty members and receive advice on their research.</li><li>• In the third year, the doctoral dissertation is submitted after a preliminary examination, and the dissertation review committee, consisting of one primary examiner and at least three secondary examiners, examines the doctoral dissertation.</li></ul>
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Evaluation of learning outcomes	<ul style="list-style-type: none"><li>• In the first year, students present their doctoral dissertation research plan in a special research course in their area of specialization.</li><li>• In the fall semester of the second year, students give an midterm presentation of their doctoral dissertation in front of all faculty members for review.</li><li>• In the third year, students submit their doctoral dissertation after a preliminary examination and have it reviewed by the dissertation review committee consisting of at least one primary examiner and three secondary examiners.</li></ul>
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## Admission Policy

Desired students	We seek individuals who are motivated to engage in the evaluation, conservation, management and utilization of World Heritage sites from a broad perspective and with flexible thinking, and who possess the academic skills and qualities appropriate for research activities.
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Selection policy	The entrance examination will be conducted by oral examination, and the selection will be based on research and presentation skills related to the specialty.
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## Doctoral Program in Informatics

Name of the degree to be conferred	Doctor of Philosophy in Informatics
Educational purpose	Information has played an important role in human activities, but its importance has rapidly increased with recent technological advances. In order to respond to such situations, the Master's Program in Informatics (doctorate semester course) will train personnel engaged in specialized work to utilize information for academic purposes, education, daily life, culture, etc., through an interdisciplinary approach that combines humanities and sciences.
Vision of human resources development	Individuals who can see the big picture various problems related to human beings and information, set up research tasks based on their specialized knowledge and skills, and carry them out.

### Diploma Policy

The degree of Doctor of Philosophy in Informatics is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Research competence in Informatics: Advanced research skills to be able to set up advanced research topics in the field of informatics and to independently formulate and carry out research plans.	① Can the student establish essential research topics in the field of informatics that will contribute to the future, based on previous research in specialized fields related to human body, mind, and various activities? ② Are the student's research methods appropriate for solving the set advanced problems and producing original research results?
7. Expertise in Informatics: Latest advanced expertise and operational skills in informatics.	① Has the student sufficiently acquired the ability to apply advanced and specialized knowledge in the field of informatics? ② Has the student identified new and original problems supported by the latest expertise in the field of informatics?

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| 8. Ethics in Informatics: High ethical standards and normative awareness in the field of informatics | ① Does the student have sufficient knowledge of protecting intellectual property and information security related to research?<br>② Can the student explain the sense of ethics essential to the field of informatics and the knowledge of protecting intellectual property and information security? |
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#### Dissertation evaluation criteria

Dissertations for which all of the following evaluation items are deemed to be valid or achieved will be accepted as a doctoral dissertation upon final examination or confirmation of academic ability.

1. Novelty and significance of the research theme
2. Grasping and understanding of prior research
3. Validity of the research method
4. Conclusions and the validity of the logic leading to them
5. Novelty and originality of conclusions
6. Adequacy of style and organization
7. Appropriate citation of documents and materials
8. Academic contribution

The method of dissertation examination shall be as follows.

Dissertation reviews are conducted by the Dissertation review committee, which is established for each dissertation, after comprehensively judging the content of the dissertation, the presentation of the dissertation in public, and the final examination

- 1) In principle, the dissertation review committee shall consist of one primary examiner and four or more secondary examiners, including one expert outside the degree program (a faculty member of another degree program within the university, a faculty member in charge of a graduate school at another university, or a researcher at a research institution).
- 2) Doctoral dissertation defense will be approximately 60 minutes in length, including questions and answers.
- 3) The final examination will be oral or written, focusing on the dissertation and its related fields. The examination will be closed to the public and will be approximately 60 minutes in length.

#### Curriculum Policy

The purpose of this program is to foster individuals who will be involved in research to utilize information in various human activities such as academics, education, daily life, and culture through an interdisciplinary approach that integrates the humanities and sciences, and to provide them with the general and specialized knowledge and abilities described in the Diploma Policy.

In addition to the curriculum in Japanese for students entering in the spring semester, the curriculum in English for students entering in the fall semester will be developed in an integrated manner.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The curriculum consists of the Graduate General Education Courses, as well as Research Seminar Courses and Research Practice Courses unique to this degree program.</li> <li>• Through the Graduate General Education Courses, students will acquire general knowledge and abilities such as advanced knowledge creation, management skills, communication skills, teamwork skills, and internationality.</li> <li>• The Research Seminar Courses consist of Informatics Seminar, Synthetic Seminar on Informatics I, Synthetic Seminar on Informatics II and Synthetic Seminar on Informatics III taught by advisors. The Informatics Seminar provides interactive research guidance to help students acquire communication skills, internationality, and specialized knowledge in informatics. In the Synthetic Seminar on Informatics, students receive research guidance to acquire the Competence of knowledge creation, management skills, and research skills in informatics.</li> <li>• The Research Practice Courses group consists of Research Instruction, PBL, and Research Internship, MDA-related courses. In this course, students are expected to acquire leadership skills and ethics by supervising the graduation research of students under the supervision of their academic advisors, assuming that they will become university faculty members in the future. Internships allow students to acquire practical research methods and leadership skills by engaging in research activities at organizations other than the degree program to which they belong, such as international research institutions, national laboratories, corporate laboratories, and university laboratories.</li> </ul>
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Learning methods · Processes	<ul style="list-style-type: none"> <li>• Graduate General Education Courses, Interdisciplinary Foundation Courses, Degree Programs' Common Courses and lecture courses of other graduate schools or degree programs of the University are selected and studied as necessary.</li> <li>• In the Research Seminar Courses, students solidify the foundation of their research in Synthetic Seminar on Informatics I, come into contact with research from various fields in Informatics Seminar, and consolidate their research results in Synthetic Seminar on Informatics II and III.</li> <li>• Two or more Research Practice Courses will be selected and studied as necessary.</li> <li>• Regardless of the entrance examination category and the instructional language, the prescribed credits may be included in the completion requirements.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Each subject is evaluated according to the evaluation method described in the syllabus.</li> <li>• Possession of general and specialized knowledge and abilities will be confirmed by the expert committee each year based on course mastery and activities, including papers and conference presentations.</li> <li>• The conditions for acceptance of a dissertation application are a midterm presentation and at least two peer-reviewed academic papers that form the core of the doctoral dissertation.</li> <li>• Prior to the review of the dissertation, a preliminary dissertation review committee, including regular and secondary research advisors, will consider whether the dissertation is appropriate for review. A preliminary dissertation review committee is established for each dissertation submitted for the degree, and a decision on acceptance or rejection is made within one year after the committee is established.</li> <li>• In principle, the dissertation will be reviewed for appropriateness by a dissertation review committee consisting of five members, including at least one expert outside the degree program (faculty members in charge of other degree programs within the university, graduate school faculty members at other universities, researchers at research institutes, etc.) and a regular research advisor.</li> </ul>
Admission Policy	
Desired students	<ul style="list-style-type: none"> <li>• Individuals who strive with a sense of purpose to take an interdisciplinary approach to the formulation and resolution of problems concerning the utilization of information.</li> <li>• Individuals who have sufficient fundamental skills, communication skills, presentation skills, and language skills to be active internationally.</li> <li>• Individuals who are capable of planning a research schedule, conducting the research, and finally, building on research outcomes.</li> </ul>
Selection policy	<p>Selection will be based on a comprehensive evaluation of the oral examination results. Apart from the General Selection Process, there are several other selection processes: the Special Selection Process for Recommended Applicants for those who have obtained a master's degree with research achievements or who are expected to obtain a master's degree with excellent grades, the Special Selection for Working Individuals for those work working experience, and the Special Selection Process of Global Individuals in English for those entering the program in October. Video conferencing tools will be used for the oral examination for applicants who are applying through the Special Selection Process of Global Individuals in English.</p>

## Doctoral Program in Human Biology

Name of the degree to be conferred	Doctor of Philosophy in Human Biology
Educational purpose	To foster individuals who understand the mechanisms of human life maintenance, adaptation, and inheritance, who have acquired multidisciplinary expertise and advanced research skills that can contribute to the resolution of global issues related to human health, and who have the qualities of top international leaders and highly skilled professionals who can lead the creation of a society where people can live their lives as best they can.
Vision of human resources development	Doctoral students who complete this program will have the ability to identify issues, make breakthroughs (planning and logical persuasion), and complete tasks in order to form an international consensus to solve global issues. They will be able to lead internationally feasible solutions to global issues in industry and scientific administrative organizations, promote entrepreneurship in new industries necessary to solve problems, and become research/education/international coordinators who are eagerly awaited by university administrations.

### Diploma Policy

The degree of Doctor of Philosophy in Human Biology is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Professional skills: Academic skills in human biology necessary for solving global issues.	① Does the student have the knowledge and skills to establish an original research theme and obtain excellent research results in the field of human biology? ② In the field of human biology, can the student tackle new problems by making full use of multidisciplinary methodologies?

7. Connoisseurship: Ability to independently discover issues that may lead to a paradigm shift.	① Can the student accurately grasp the essence of new and unknown issues that arise? ② Can the student propose solutions to problems based on flexible and multifaceted ideas, without being limited to conventional knowledge and skills?
8. Breakthrough ability: Ability to solve problems with sincerity and diligence.	① Does the student have the firm will necessary to explore the nature of the unknown problem? ② Can the student formulate a plan for solving a problem and persistently carry it out with high motivation and a sense of ethics? ③ As a leader, can the student gather appropriate individuals and build a network to solve problems?
9 Conclusion: Ability to disseminate the results of solutions to society and apply them to social contribution.	① Can the student summarize and present the results of his/her research in an academic paper? ② Can the student, with an understanding of social conventions and economic systems, turn his/her research results into intellectual property and apply them to the needs of society from an international and regional perspective?

#### Dissertation evaluation criteria

##### Level standards required for the degree thesis

The applicant must be recognized as having the ability to set up an original and outstanding theme in human biology, to obtain results appropriate for a doctoral degree, and to compile the results in an appropriate style. The applicant must also be recognized as having the ability to understand the needs of society in the field, to set up the necessary implementation objectives, to promote research and practice on his/her own, to summarize the results, and to publish academic papers that are highly evaluated internationally by industry or academia.

The expert committee shall consist of one primary examiner and at least three secondary examiners. The primary examiner shall be appointed by the review committee from among the research advisors of the degree program, and the secondary examiners shall be appointed by the review committee from among the research advisors or course instructors of the degree program. The secondary examiners shall include the applicant's primary advisor, and in addition to faculty members of the degree program, faculty members of other academic institutions, university faculty members of other universities, or those recognized by the review committee as having equivalent or superior research achievements, and one faculty member from overseas or from industry who serves as a secondary advisor may be added.

##### Review method and review items, etc

Based on the dissertation, oral presentation and question-and-answer session. The examination items are as follows.

(1) Human ability suitable for a top world leader capable of leading globally (2) Planning ability and originality (ability to explain the setting of the theme, significance of the plan, originality, feasibility, and expected results) (3) Results in practice (quality and quantity of research and activity results) (4) Project promotion ability (reliability of results, significance of results, understanding of results, planning) (5) Summary skills (ability to compose a proposal or academic paper by layering results, ability to create logical and persuasive documents, presentation skills)

#### Curriculum Policy

Understand the concept of human biology, acquire the expertise of epigenetic biomolecules science and its control technology that cannot be handled by conventional central dogmas centered on DNA analysis, and apply these findings to the field of society. The educational course for cultivating connoisseurs, breakthroughs, and completeness to be utilized to solve problems will be organized as follows.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• Through the courses in “Basic Subjects” , students will acquire (1) a strong desire to play an active role in the world, (2) a sincere spirit, a sense of ethics, the ability to negotiate internationally, and the fundamentals of leadership and entrepreneurship, and (3) the ability to adapt to the environment and the practical ability to learn to navigate the globe, extracting problems to be solved from complex realities.</li> <li>• By taking the course in “Medical Subjects” , “Molecular Subjects” , and “Mathematics and Computational Science” belonging to “Basic Specialized Subjects” , students will acquire (1) knowledge of human biology at a level equivalent to that of Japanese physicians, (2) specialized knowledge of chemical substances and their research methods, and (3) exercises in computer-aided biological research. In this course, students will acquire computer-aided complex research methods for research on human subjects, where experimental research is limited.</li> <li>• Through the courses categorized in “Other Subjects” of “Basic Specialized Subjects, students will systematically learn about the latest achievements in human biology and research methods in the life sciences.</li> <li>• With the aim of improving each student's expertise through “Specialized Subjects” , students will deepen their specialized knowledge and skills in their chosen field, develop their research skills, and learn how to extrapolate the results of animal experiments to humans by introducing computational science.</li> <li>• In the third through fifth years, students develop their individuality and establish their own future career goals in the world.</li> <li>• In addition to the primary advisor, two or more secondary advisors, including one from overseas universities, industry, or independent research institutes, will be selected for specialized research through regular multi-teacher guidance using e-mail, the Internet, and other means of communication.</li> </ul>
Learning methods • Processes	<p>The standard course schedule is shown below.</p> <ul style="list-style-type: none"> <li>• By the end of the second year, students must earn 60 credits in required and elective courses and pass QE1.</li> <li>• In the first half of the fourth year, a midterm evaluation is conducted by the midterm evaluation committee, and students receive guidance on the preparation of their dissertations.</li> <li>• Students are eligible to submit a dissertation if they pass the midterm evaluation, earn 72 credits in required and elective courses, acquire a certain level of English proficiency (TOEIC 860 or higher, etc.), pass the QE2, publish (including in print) at least two original papers in English (one as the first author) in journals with an established review system and are certified as passing by the preliminary dissertation review committee established in the second half of the fifth year.</li> <li>• Upon submission of the dissertation, the dissertation review committee is established, and the dissertation review and final examination are conducted.</li> </ul>

Evaluation of learning outcomes	<p>■ <b>Dissertation midterm presentation</b></p> <p>In the fourth year, a dissertation midterm presentation is held to monitor the progress of doctoral dissertation research, and the Qualifying Examination 1 (QE1) Implementation Committee examines oral presentations and oral examinations based on the submitted written documents and provides appropriate advice and guidance to ensure the smooth conduct of research and efficient dissertation preparation. Appropriate advice and guidance will be provided to achieve the smooth conduct of research and efficient dissertation preparation.</p> <p>■ <b>Preliminary dissertation defense</b></p> <p>Students who have passed the Qualifying Examination 2 (QE2) are required to take the Preliminary Examination for the Doctoral Dissertation (Human Biology) in the fifth year. A preliminary examination committee consisting of one primary examiner and at least two secondary examiners will examine the submitted doctoral dissertation (human biology) through oral presentations and oral examinations. Those who fail the examination will not be allowed to take the final examination.</p> <p>■ <b>Final dissertation defense</b></p> <p>Students who pass the preliminary examination undergo the final examination for the doctoral dissertation at the end of the fifth year.</p> <p>Based on the submitted doctoral dissertation (human biology), the doctoral dissertation examination committee, consisting of one primary examiner and at least two secondary examiners, will conduct an oral presentation and an oral examination to determine whether the dissertation is worthy of being awarded the doctoral degree (human biology).</p>
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Admission Policy	
Desired students	This degree program seeks individuals who have the ability to understand the mechanisms of maintenance, adaptation, and inheritance of human life, and who have the qualities to become global leaders in a wide range of industry, academia, and government.
Selection policy	We do not question the amount of knowledge that the applicant currently possesses, but rather evaluate the applicant's capabilities, specifically whether they can reason logically using the given environment and their current knowledge and skills, whether they can explain things to others in an easy-to-understand manner, whether they can understand others' explanations, and how the applicant deals with difficulties when they arise.

## Doctoral Program in Life Science Innovation (Disease Mechanism)

Name of the degree to be conferred	Doctor of Philosophy in Disease Mechanism
Educational purpose	The Doctoral Program in Life Science Innovation cultivates highly specialized professionals or researchers who possess the world's top-class advanced specialized research ability with cross-disciplinary mind from a higher perspective, open up a new strides in life science research using bioresources, produce internationally highly appraised research outcomes, and are globally active in the areas of research and development of innovative pharmaceutical products and functional foods and in the areas of their maintenance and administration.
Vision of human resources development	In the doctoral course, students will use the knowledge and skills acquired in the master's course to develop "researchers and highly-skilled professionals who can be immediately effective in the field of biomedical sciences by enhancing research management, conducting internationally acclaimed original research that leads to innovative treatments for intractable diseases, and disseminating the research results internationally."
Diploma Policy	
The degree of Doctor of Philosophy in Disease Mechanism is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Innovation ability: Ability to make innovations in the areas of life science.	① If there is the awareness and motivation to create new knowledge and pass it along to the society in the areas of life science ② If the research techniques and reasoning skills for the theory and practice that lead to innovation creation in the areas of life science were gained ③ If issues that have not been revealed in Pathophysiology were identified and solved ④ If there is the motivation to identify and solve cross-disciplinary research tasks in cooperation with researchers from different areas and not just one's own area



7. Specialized knowledge: Leading-edge knowledge in the area of expertise	① If leading-edge specialized knowledge about Pathophysiology was gained ② If a research plan for solving unsolved issues was drawn up based on gained specialized knowledge
8. Advanced practical English: Command of English sufficient for performing various activities involving research in the international society	① If the presentation ability that can impact the international society when research outcomes are reported or shared in English was gained ② If the English proficiency and knowledge to debate equally with researchers active in the front lines were gained

#### Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree dissertation must be the results of work in which the diploma applicant took the initiative and must contain research findings that are unprecedented and internationally highly appraised and that contribute to make strides in the areas of Pathological mechanism field. The degree dissertation must be written in English logically and scientifically and must be constructed in an appropriate format as a degree dissertation.

【Review board members】 A dissertation is reviewed by an exclusive board formed by one chief reviewer and three or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the three or more sub-reviewers, two or more faculty members qualified to supervise the research in the Program must be included. The four or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the four or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain his or her degree thesis content and then questioned by exclusive board members about what he or she has explained. The presentation of dissertation content and a question-and-answer session, which are part of the final exam, are publicly administered. During this examination, in which the applicant is required to make a presentation about his or her degree dissertation in English logically and scientifically, the applicant is evaluated to see if he or she can convince the reviewers sufficiently by answering the reviewers' questions with insight and by using the advanced specialized knowledge of the areas of Biomolecular materials field and including the latest research trends.

#### Curriculum Policy

Students are engaged in the research activities for identifying and solving unsolved issues for making innovations in the realms of Pathological mechanism area. The curriculum includes internship subjects to support students in making innovations, for which they need to have the high awareness and motivation to work on research tasks in very different and/or cross-disciplinary areas in cooperation with researchers in different areas not just one's own area of expertise. In addition, to gain the cross-disciplinary way of thinking with the big picture in mind and cultivate the world's top-class advanced specialized research ability, the curriculum also organizes seminars taught by researchers who are active in the front lines and belong to overseas research institutes.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The curriculum in the Pathophysiological mechanism area realms are composed of Major Subjects, the General Foundation Subjects shared by the six realms of the Master's Program in Life Science Innovation (Disease Mechanism, Drug Discovery, Food Innovation, Environmental Management, Bioinformatics, Biomolecular Engineering), and Graduate General Education Courses.</li> <li>With the Major Subjects, in addition to the lectures for cultivating the expert abilities in bioinformatics, students are supervised for Pathophysiological mechanism research in the laboratory of each student.</li> <li>• Competence of knowledge creation is gained through doctoral dissertation creation, etc.</li> <li>• Management competence is gained through "Doctoral Competency Development", etc.</li> <li>• Communication competence is gained with "Practices in Life Science Innovation", etc.</li> <li>• Leadership competence is gained through "Doctoral Research in Life Science Innovation".</li> <li>• Competence in Internationality is gained through "Doctor's Life Science Innovation Seminar", etc.</li> <li>• Innovation ability is gained through General Foundation Subjects, Major Subjects, etc.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Specialized knowledge is gained through “Doctoral Research in Life Science Innovation”, etc.</li> <li>• Advanced practical English is gained through “Doctor's Life Science Innovation Seminar”, etc.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• With the understanding of the latest research trends in Pathological mechanism, students identify issues that have not been revealed and draw up and carry out an appropriate research plan for solving them. Further, through critical debates with supervisory faculty members, students develop the plan into a research that leads to produce life science innovations.</li> <li>• Obtained research findings are presented in academic journals, etc. With this, students improve their English proficiency, and in the process, gain reasoning skills.</li> <li>• With General Foundation Subjects and Graduate General Education Courses, students learn the latest research trends in the areas of life science and also improve English presentation ability.</li> <li>• Through internships, you will hone your research skills through the experience of collaborating with researchers outside the field to create new knowledge.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the initial evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for doctoral dissertation creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• One year before the expected completion of the Program, interim evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Five months before the expected completion of the Program, the final evaluation (Achievement evaluation III) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered five months before the expected completion of the Program, the preliminary review for the doctoral dissertation is conducted by the chief reviewer and three sub-reviewers.</li> <li>• At the final exam which is administered three months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and three sub-reviewers based on the presentation and question-and-answer session for the doctoral dissertation content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who have the sufficient qualities to gain the basic research abilities that are expected to make innovations in the areas of Pathological mechanism area, the specialized knowledge necessary to achieve it, and good command of English serving for various research activities in the international society.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess master's degree level specialized knowledge (excellence in the current academic performance), and the ability to explain concretely in English about research backgrounds, research plans and about passing along research findings to the society.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for carrying out research activities in the Doctoral Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation and basic research abilities necessary for making innovations in the areas of Pathological mechanism area and the ability to explain and debate in English.</li> </ul>

## Doctoral Program in Life Science Innovation (Drug Discovery)

Name of the degree to be conferred	Doctor of Philosophy in Medical Science
Educational purpose	The Doctoral Program in Life Science Innovation cultivates highly specialized professionals or researchers who possess the world's top-class advanced specialized research ability with cross-disciplinary mind from a higher perspective, open up a new strides in life science research using bioresources, produce internationally highly appraised research outcomes, and are globally active in the areas of research and development of innovative pharmaceutical products and functional foods and in the areas of their maintenance and administration.
Vision of human resources development	In the doctoral course, students will use the skills and knowledge acquired in the master's course to develop "researchers and highly-skilled professionals who can enhance their research management skills, conduct internationally acclaimed original research that leads to the development of innovative drugs, disseminate the results of their research internationally, and be immediately effective in the development of innovative drugs."

### Diploma Policy

The degree of Doctor of Philosophy in Medical Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Innovation ability: Ability to make innovations in the areas of life science.	① If there is the awareness and motivation to create new knowledge and pass it along to the society in the areas of life science ② If the research techniques and reasoning skills for the theory and practice that lead to innovation creation in the areas of life science were gained ③ If issues that have not been revealed in Drug discovery development studies were identified and solved ④ If there is the motivation to identify and solve cross-disciplinary research tasks in cooperation with researchers from different areas and not just one's own area

7. Specialized knowledge: Leading-edge knowledge in the area of expertise	① If leading-edge specialized knowledge about Drug Discovery and Development was gained ② If a research plan for solving unsolved issues was drawn up based on gained specialized knowledge
8. Advanced practical English: Command of English sufficient for performing various activities involving research in the international society	① If the presentation ability that can impact the international society when research outcomes are reported or shared in English was gained ② If the English proficiency and knowledge to debate equally with researchers active in the front lines were gained

#### Dissertation evaluation criteria

【Level standards required for the degree thesis】 The degree dissertation must be the results of work in which the diploma applicant took the initiative and must contain research findings that are unprecedented and internationally highly appraised and that contribute to make strides in the areas of Drug discovery and development field. The degree dissertation must be written in English logically and scientifically and must be constructed in an appropriate format as a degree dissertation.

【Review board members】 A dissertation is reviewed by an exclusive board formed by one chief reviewer and three or more sub-reviewers. The chief reviewer must be a faculty member assigned to supervise the research in the Program. As the three or more sub-reviewers, two or more faculty members qualified to supervise the research in the Program must be included. The four or more reviewers of the exclusive board must include one or more reviewers from each of the both internal and external Program faculty members, and this is how diploma examination is administered in a system cooperative between internal and external faculty members. In addition, as the four or more reviewers of the exclusive board, no more than one reviewer who does not belong to the Program can be included.

【Review method and review items, etc.】 The applicant is asked to explain his or her degree thesis content and then questioned by exclusive board members about what he or she has explained. The presentation of dissertation content and a question-and-answer session, which are part of the final exam, are publicly administered. During this examination, in which the applicant is required to make a presentation about his or her degree dissertation in English logically and scientifically, the applicant is evaluated to see if he or she can convince the reviewers sufficiently by answering the reviewers' questions with insight and by using the advanced specialized knowledge of the areas of Drug discovery development field and including the latest research trends.

#### Curriculum Policy

Students are engaged in the research activities for identifying and solving unsolved issues for making innovations in the realms of Drug discovery and development area. The curriculum includes internship subjects to support students in making innovations, for which they need to have the high awareness and motivation to work on research tasks in very different and/or cross-disciplinary areas in cooperation with researchers in different areas not just one's own area of expertise. In addition, to gain the cross-disciplinary way of thinking with the big picture in mind and cultivate the world's top-class advanced specialized research ability, the curriculum also organizes seminars taught by researchers who are active in the front lines and belong to overseas research institutes.

Curriculum organization policy	<ul style="list-style-type: none"> <li>• The curriculum of the Drug discovery development area consists of Major Subjects, General Foundation Subjects common to all six fields of the degree program (Disease Mechanism, Drug Discovery and Development, Food Innovation, Environmental Control, Bioinformatics, and Biomaterials), and common subjects for graduate students.</li> <li>In addition to the lectures in the Major Subjects, students receive research guidance on Drug discovery development in the laboratories to which they belong.</li> <li>• Competence of knowledge creation is gained through doctoral dissertation creation, etc.</li> <li>• Management competence is gained through “Doctoral Competency Development”, etc.</li> <li>• Communication competence is gained with “Practices in Life Science Innovation”, etc.</li> <li>• Leadership competence is gained through “Doctoral Research in Life Science Innovation”.</li> <li>• Competence in Internationality is gained through “Doctor's Life Science Innovation Seminar”, etc.</li> <li>• Innovation ability is gained through General Foundation Subjects, Major Subjects, etc.</li> <li>• Specialized knowledge is gained through “Doctoral Research in Life Science Innovation”, etc.</li> <li>• Advanced practical English is gained through “Doctor's Life Science Innovation Seminar”, etc.</li> </ul>
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Learning methods · Processes	<ul style="list-style-type: none"> <li>• With the understanding of the latest research trends in Drug discovery and development, students identify issues that have not been revealed and draw up and carry out an appropriate research plan for solving them. Further, through critical debates with supervisory faculty members, students develop the plan into a research that leads to produce life science innovations.</li> <li>• Obtained research findings are presented in academic journals, etc. With this, students improve their English proficiency, and in the process, gain reasoning skills.</li> <li>• With General Foundation Subjects and Graduate General Education Courses, students learn the latest research trends in the areas of life science and also improve English presentation ability.</li> <li>• Through internships, you will hone your research skills through the experience of collaborating with researchers outside the field to create new knowledge.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• One year after enrollment, the initial evaluation (Achievement evaluation I) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the mid-term presentation which is administered a year after enrollment, the interim review for the progress of research for doctoral dissertation creation is conducted by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• One year before the expected completion of the Program, interim evaluation (Achievement evaluation II) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• Five months before the expected completion of the Program, the final evaluation (Achievement evaluation III) is conducted by the achievement evaluation board formed by the supervisory faculty member and two sub-supervisory faculty members.</li> <li>• At the preliminary review which is administered five months before the expected completion of the Program, the preliminary review for the doctoral dissertation is conducted by the chief reviewer and three sub-reviewers.</li> <li>• At the final exam which is administered three months before the expected completion of the Program, the diploma examination is conducted by the chief reviewer and three sub-reviewers based on the presentation and question-and-answer session for the doctoral dissertation content.</li> </ul>
Admission Policy	
Desired students	We seek candidates who have the sufficient qualities to gain the basic research abilities that are expected to make innovations in the areas of Drug discovery and development area, the specialized knowledge necessary to achieve it, and good command of English serving for various research activities in the international society.
Selection policy	<ul style="list-style-type: none"> <li>• Candidates are selected through document screening to evaluate if they possess master's degree level specialized knowledge (excellence in the current academic performance), and the ability to explain concretely in English about research backgrounds, research plans and about passing along research findings to the society.</li> <li>• With an English proficiency exam, candidates are evaluated if they possess the English proficiency (equivalent to level B2 or higher in CEFR) necessary for carrying out research activities in the Doctoral Program in Life Science Innovation.</li> <li>• With an oral exam, students are evaluated if they have the motivation and basic research abilities necessary for making innovations in the areas of Drug discovery and development area and the ability to explain and debate in English.</li> </ul>



## Joint Master's Program in International Development and Peace through Sport

Name of the degree to be conferred	Master of Arts in International Development and Peace through Sport
Educational purpose	Purpose of this English-Medium program is to train future practitioners and researchers who can contribute to the development of international peace, friendship, and affluent local communities and demonstrate a leadership role and responsibilities by using theoretical and practical knowledge of sport, health and physical education.
Vision of human resources development	<p>Master of Arts in International Development and Peace through Sport will be awarded to those who have fulfilled the objectives of the program as stipulated in the University of Tsukuba Graduate School Regulations and the University of Physical Education and Sports Science at Kanoya, and who have been certified by the final examination to have the following abilities</p> <ol style="list-style-type: none"> <li>1. Knowledge, analytical skills, and a sense of mission regarding international affairs and policies and global-scale issues</li> <li>2. Global perspective and leadership that can be demonstrated in practice</li> <li>3. Basic knowledge and practical skills in sports, physical education, and health</li> <li>4. Communication and management skills for international contribution</li> </ol>
Diploma Policy	
<p>The degree of Master of Arts in International Development and Peace through Sport is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.</p>	
Competencies	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	<ol style="list-style-type: none"> <li>① Can you apply knowledge gained through research and other activities in society?</li> <li>② Can you identify new problems, even in other fields of expertise, based on broad knowledge?</li> </ol>
2. Management competence: Ability to appropriately address challenges from broad standpoints	<ol style="list-style-type: none"> <li>① Can you take on major tasks with systematic planning?</li> <li>② Can you understand and solve problems from multiple perspectives?</li> </ol>
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	<ol style="list-style-type: none"> <li>① Are you capable of efficient communication for research purposes?</li> <li>② Can you discuss research or research-specific knowledge with experts from your own field and from other fields?</li> </ol>
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	<ol style="list-style-type: none"> <li>① Do you have experience cooperatively and actively working on challenges as part of a team?</li> <li>② Have you helped promote projects and activities other than your own research?</li> </ol>
5. Internationality competence: Willingness to contribute to international society	<ol style="list-style-type: none"> <li>① Are you aware of making contributions to international society and getting involved in international activities?</li> <li>② Have you obtained the linguistic skills necessary for international information collection and action?</li> </ol>
6. Knowledge, analytical skills, and a sense of mission regarding international affairs and policies and global-scale issues	Has the student acquired knowledge, analytical skills, and a sense of mission regarding international affairs and policies and global issues?
7. Global perspective and leadership that can be demonstrated in practice	Does the student have a global perspective, leadership skills that can be demonstrated in practical settings, practical skills related to sports, physical education, and health, and communication and management skills for international contribution?



8. Basic knowledge and practical skills in sports, physical education, and health	Does the student have basic knowledge of sports, physical education, and health as well as the foundation for practical skills?
9. Communication and management skills for international contribution	Does the student have the communication and management skills to make international contributions?

#### Dissertation evaluation criteria

The dissertation will be reviewed by the primary and two secondary examiners, followed by an oral presentation and question and answer session (questions will be open to the public, not just to the primary and secondary examiners), and the primary and secondary examiners will evaluate the dissertation on a 100-point scale, with a score of 60 or higher being a passing grade.

#### <Examination Criteria for Master's Dissertation.>

1. Appropriateness of the research theme
  - a. The background and problem of setting the research theme, its usefulness to the field, and its artistic and social significance are appropriately presented.
  - b. The research objectives and tasks are appropriate and clear.
  - c. The content of the research contributes to the study of international sport development.
2. Appropriateness of literature research
  - a. Appropriately organizes and overviews previous research related to the research theme.
  - b. Appropriately relates to and utilizes research prior to the student's own research.
3. Validity of the research method
  - a. Appropriate research methods were selected to achieve the research objectives.
  - b. The validity of the selected research method and its methodology is appropriately demonstrated.
  - c. Appropriate ethical considerations are presented in carrying out the research.
4. Consistency of logic
  - a. Consistency and coherence in logical development throughout the research dissertation.
  - b. Logical and clear conclusions on the research purpose and issues are stated based on materials and data.
5. Uniqueness and originality of the research
 

Uniqueness and originality are present in the research theme, purpose and problem setting, research methods, and conclusions.
6. Appropriateness of the structure and style of the dissertation.

#### <Specific task report>

1. Appropriateness of the research theme
  - a. The background and problem of setting the research theme, its usefulness to the field, and its artistic social significance are appropriately presented.
  - b. The research objectives and tasks are appropriate and clear.
  - c. The content of the research contributes to the study of international sport development.
2. Appropriateness of literature research
  - a. Appropriately organizes and overviews previous research related to the research theme.
  - b. Appropriately relates to and utilizes research prior to the student's own research.
3. Validity of the research method
  - a. Appropriate research methods were selected to achieve the research objectives.
  - b. The validity of the selected research method and its methodology is appropriately demonstrated.
  - c. Appropriate ethical considerations are presented in carrying out the research.
4. Consistency of logic
  - a. Consistency and coherence in logical development throughout the research report.
  - b. Logical and clear conclusions on the research purpose and issues are stated based on materials and data.
5. Practicality of the research
 

Practicality in the field is present in the research theme, purpose and problem setting, research methods, and conclusions.
6. Appropriateness of structure and presentation
 

The dissertation is prepared appropriately in accordance with the dissertation preparation guidelines of the university that comprises this department.

## Curriculum Policy

In addition to specialized knowledge and research skills in the two fields of physical education and international development studies, education and research guidance will be provided to cultivate the general knowledge and abilities, including an understanding of diversity, necessary to demonstrate leadership in international development.

### Curriculum organization policy

The Curriculum organization policy is as follows. The following Major Subjects are offered in order to acquire specialized skills appropriate to the degree. In addition, related courses have been established to contribute to the cultivation of basic knowledge, broad perspectives, and general knowledge and abilities in related fields. In the future, in addition to the related courses, we will further cultivate general knowledge and abilities by recommending students take 2 credits from the Degree Programs' Common Courses, Inter-disciplinary Foundation Courses, and Graduate General Education Courses.

#### ■ Lecture Course (14 credits or more)

- Acquire knowledge that will form the basis of the abilities to be acquired in the General Foundation Subjects (International Development and Peace through Sport I, Olympic Movement Studies, Sport Management, Sport, Culture and Society, Health Promotion, Advanced Coach Education, Research Methodology, etc.). The course will be further enriched with the addition of Comparative Physical Education from 2019.
- In applied subjects (International Development and Peace through Sport II, Management and Organization, Project Management, etc.), students will acquire a global perspective, leadership skills that can be demonstrated in practical settings, practical skills related to sport, physical education and health, and communication and management skills for international contribution.
- Acquire knowledge and analytical skills in international affairs and policies and global issues in Specific Foundation Subjects (such as Principles of Development, Public Policy for Social Development, International Politics, and Development Economics in Asia).

#### ■ Exercise Subjects (10 to 12 credits)

- In the intramural courses (problem-based exercises), students select five areas according to their research themes: development and peace through sport; education and youth development through sport; sport and gender, race, and ethnicity; health and the environment; and adapted sport and the elderly. In addition to specialized knowledge of the abilities to be acquired, students will acquire a global perspective and leadership skills that can be demonstrated in practice.
- Off-campus courses (JSC seminars, JSC projects, foreign university seminars, international conference seminars, etc.) will help students acquire a global perspective and leadership skills that can be demonstrated in practical settings.

#### ■ Practical subjects (6 to 8 credits)

- Through the domestic OJP (4 weeks) and the international OJP (16 weeks), students will acquire knowledge and practical skills in the field of the competencies to be acquired.

#### ■ Career path formation

In this major, the characteristics of both the University of Tsukuba and the Kanoya University of Health and Sport Sciences are utilized, and through collaboration with JSC, lectures, exercises, and practical training are bridged, and curricula are organized and implemented in a way that directly relates to career path formation. In addition to the "JSC Seminar" and "JSC Project," in which students participate in the projects developed by JSC, JSC is one of the organizations that implements the domestic OJP (4 weeks), and the information and network of JSC is also utilized in the implementation of the international OJP (16 weeks). The international OJP is important for students' career path formation, and is implemented in cooperation with NGOs, IFs, NFs, and universities outside Japan, as well as through the long-term volunteer program of the Japan International Cooperation Agency (JICA), with which we have an agreement.

Learning methods • Processes	<ul style="list-style-type: none"> <li>• The guidance system consists of one primary adviser and two secondary advisers (one of the secondary advisers is a teacher outside the home university).</li> <li>• In the first year, students are required to take exercises in the field of their choice.</li> <li>• From the second half of the first year to the second year, students participate in On the Job Practice (4 weeks) outside Japan.</li> <li>• In the second year, students take a research project.</li> <li>• In the second year, there will be an midterm presentation (October), submission of dissertation (or specific subject report) theme (November), submission of dissertation (or specific subject report) (January), and final examination (January).</li> </ul>
Evaluation of learning outcomes	<p>Achievement evaluation is conducted comprehensively from the time of admission to the completion of the course in terms of items such as students' course completion, teaching methods, and guidance system.</p> <ul style="list-style-type: none"> <li>• Lecture courses: Written examinations and oral examinations will be used to evaluate professional knowledge and basic skills as a practitioner.</li> <li>• Seminar subjects: Expert knowledge in the subject exercises will be evaluated by written and oral examinations. Global perspective and leadership skills in practical subjects outside the university will be evaluated based on the status of study and interviews after consultation between the faculty members of the two universities, JSC staff, and field instructors who have concluded agreements.</li> <li>• Practical subjects: Evaluation of overall competence in domestic and overseas OJP will be based on the status of study and interviews after consultation between the faculty members of the two universities, the person in charge of JSC and the on-site supervisor of the partner institution.</li> <li>• Career path formation: Based on the experience of seminar subjects (off-campus) and practical subjects, the global overview and leadership skills that can be demonstrated in the field of practice, practical skills related to sports, physical education, and health, and communication and management skills for international contribution will be evaluated through academic study and interviews in consultation with the faculty members of the two universities, the person in charge of JSC, and the field leaders of the partner institutions.</li> </ul>
Admission Policy	
Desired students	We seek students who have basic knowledge of sports, physical education, and health, who have practical experience in sports-related teaching, and who have a strong sense of mission and purpose for international development and peacebuilding based on their English communication skills and knowledge of international affairs and policies.
Selection policy	<ul style="list-style-type: none"> <li>• Oral examination (200 points): Evaluation of basic knowledge of sport, physical education, and health, presentation of research plan, and question and answer session. (Foreign residents can take the exam online)</li> <li>• English (TOEIC, TOEFL, or IELTS converted to a score of 100 points)</li> </ul>

## Joint Doctoral Program in Advanced Physical Education and Sports for Higher Education

Name of the degree to be conferred	Doctor of Philosophy in Physical Education and Sport Studies
Educational purpose	With the foundation of educational and research expertise in physical education and sports in higher education at the University of Tsukuba and the National Institute of Fitness and Sport in Kanoya, this program trains advanced physical education teachers who are equipped with solid specialized knowledge and practical teaching skills as well as academic skills to effectively carry out the cycle of educational practice and research.
Vision of human resources development	<ul style="list-style-type: none"> <li>• Individuals with solid professional knowledge and practical teaching skills who can lead university physical education and sports.</li> <li>• Individuals with practical research skills who can explore practical knowledge in the field of university physical education and sports and circulate the research results to education.</li> <li>• Individuals with the necessary education for advanced leaders who will lead the quality assurance of physical education and sports education in higher education.</li> </ul>

### Diploma Policy

The degree of Doctor of Philosophy in Physical Education and Sport Studies is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Practical educational skills: Practical educational skills in college physical education and sports teaching situations	① Can the student develop an appropriate lesson or training implementation plan that takes into account the characteristics of the target audience? ② Does the student have the ability to implement, verify, and improve the proposed plan?

7. Practical research skills: Ability to conduct practical and useful research on events in the field of university physical education and sports.	① Can the student establish a research theme that is highly original and useful? ② Can the student generate accurate hypotheses and test them in a logical and objective manner?
8. Ethics: high ethical standards as a leader of collegiate athletic sports	① Can the student respect the human rights of those under their guidance and provide fair and just guidance at all times? ② Does the student abide by social norms and always have an awareness of being a leader?

#### Dissertation evaluation criteria

1. Originality of the research theme and content
  - a. Originality is present in the research theme, problem formulation, research method, and discussion/conclusion.
  - b. The research results have clear academic and social significance, including usefulness to the field and contribution to the academic community.
2. Research design
  - a. The questions are appropriately set in line with the research theme, and the arguments are appropriately developed in response.
  - b. The logic is coherent and the conclusions are clearly drawn.
3. Research methods
  - a. Appropriate research methods are selected for the research theme, purpose, and problem setting.
  - b. In-depth understanding of research methods and mastery of appropriate collection, handling, and analysis of materials and data.
  - c. The interpretation and discussion of the results are reasonable.
  - d. Ethical considerations are taken into account.
4. Understanding of the research area  
The student has a broad and accurate understanding of prior research, research trends in the field, and related research.
5. Composition and style of the paper  
The structure and content of the introduction, methods, results, discussion, and conclusions, as well as the method of citation and presentation of notes and references, are appropriate, and the paper has the appearance of an academic dissertation.
6. Review system and review method  
The dissertation review committee shall consist of at least four members: one primary examiner and at least three secondary examiners (including one faculty member from another department). One of the primary or secondary examiners shall be a faculty member of another major who is not included in the primary or secondary advisors. The dissertation review committee will make a 30-minute presentation on the outline of the dissertation, followed by a question-and-answer session. The committee will review whether the applicant has met the criteria for evaluation of the dissertation, together with confirmation of the applicant's credit acquisition.

#### Curriculum Policy

For the purpose of cultivating practical educational and research skills, the following curricula will be organized so that the educational and research resources of both Tsukuba University and Kanoya University of Health and Sport Sciences can be utilized while using the remote lecture system.

Curriculum organization policy	<p>The curriculum consists of four Course groups: "Practical Education Skills Development Courses," "Practical Research Skills Development Courses," "Advanced Leadership Education Courses," and "Doctoral Dissertation Research Skills Development Subjects."</p> <ul style="list-style-type: none"> <li>• "Practical Education Skills Development Courses": To acquire solid professional knowledge and practical education skills to lead university physical education and university sports.</li> <li>• "Practical Research Skills Development Courses": To acquire practical research skills to explore the practical knowledge of university physical education and university sports and to circulate the research results to education.</li> <li>• "Advanced Leader Education Courses": To acquire the education necessary to become a leader in university physical education and university sports.</li> </ul>
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	<ul style="list-style-type: none"> <li>• " Doctoral Dissertation Research Skills Development Courses" : Students acquire the ability to write and present practical research papers and doctoral dissertation research plans, as well as the practical educational skills required of advanced university physical education and sports instructors.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• In the first and second years of the program, students take practical teaching skills, practical research skills, and advanced supervisor education, as well as Doctoral Dissertation Seminar.</li> <li>• From Max of the second year, students who pass the Qualifying Examination, which is conducted as an assessment of their ability to research a doctoral dissertation, will begin writing their doctoral dissertations.</li> <li>• In the third year, students who prepare a doctoral dissertation and pass the examination will be awarded the doctoral degree.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Doctoral Dissertation Seminar II: From Max of the second year, students take a qualifying examination to assess their level of achievement in doctoral dissertation research skills, and their practical research and teaching abilities.</li> <li>• Doctoral dissertation: Doctoral dissertation preliminary examination and doctoral dissertation examination are conducted in the fall semester of the third year.</li> </ul>
Admission Policy	
Desired students	We seek individuals who are highly motivated to acquire practical education and research skills to solve problems in the field of education and guidance of university physical education and university sports, and who have acquired a certain level of academic research skills, such as through a master's course (regardless of major field).
Selection policy	<ul style="list-style-type: none"> <li>• Document examination (150 points): Evaluation of research plan, research achievements, teaching achievements, and educational achievements</li> <li>• Oral examination (100 points): Presentation of research plan, Q&amp;A, English (TOEIC or TOEFL score: converted to 50 points)</li> </ul>



## International Joint Degree Master's Program in Agro-Biomedical Science in Food and Health

Name of the degree to be conferred	Master of Agro-Biomedical Science in Food and Health
Educational purpose	In response to the challenges that humanity faces on a global scale, such as the maintenance and promotion of good health and the safe supply of food, based on the principle of "medicine and food have the same source," we will train highly-skilled international professionals with a scientific understanding of the effects of food on health and the specialized and practical skills to bridge the needs of global society and research and development.
Vision of human resources development	<p>To develop individuals who have the following knowledge and abilities.</p> <ul style="list-style-type: none"> <li>• Literacy: Cross-disciplinary thinking skills supported by expertise, language skills to utilize specialized knowledge and abilities</li> <li>• Coordination skills: Discernment and planning skills in overseas fields, dialogue and negotiation skills among multinationals, management skills in different fields and industries</li> <li>• Practical skills: Ability to put ideas into practice and implement them, and the ability to express oneself through presentations and self-promotion.</li> <li>• Ability to link health and food resources: Knowledge of the functionality and medical use of biological resources, knowledge of food-borne diseases and physiological disorders, knowledge of policies related to food resources and health care.</li> <li>• Ability to understand health security issues: knowledge of social medicine, including food resources and chemical safety, including pharmaceuticals</li> <li>• Ability to perceive food security issues: Knowledge on evaluation and development of biological resources (including safety) and use of sustainable food production systems</li> </ul>
Diploma Policy	
The degree of Master of Agro-Biomedical Science in Food and Health is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.	
Competencies	Evaluation perspectives
1. Literacy: Cross-disciplinary thinking skills, language skills	① Does the student have the ability to think in a cross-disciplinary manner based on his/her expertise? ② Does the student have the language skills to utilize his/her specialized knowledge and abilities?
2. Coordination skills: Discernment and planning, dialogue and negotiation, management skills	① Does the student have discernment and planning skills in overseas fields? ② Does the student have multinational dialogue and negotiation skills? ③ Does the student have the ability to manage in different fields and different industries?
3. Practical skills: Ability to practice and express oneself	① Does the student have the practical ability to put ideas into practice and implement them? ② Ability to express oneself through presentations and self-promotion
4. Ability to link health and food resources	① Does the student have knowledge of the functionality and medical use of biological resources? ② Does the student have knowledge of food-borne diseases and physiological disorders? ③ Does the student have knowledge of policies related to food resources and medical care?
5. Ability to understand health security issues	Does the student have knowledge of social medicine, including food resources and chemical safety, including pharmaceuticals?
6. Ability to understand food security issues	Does the student have knowledge of the evaluation and development of biological resources (including safety) and their use in sustainable food production systems?

## Dissertation evaluation criteria

### ① Standard requirements for the degree thesis

1. Mastering fundamental knowledge and skills in global food safety assessment and health maintenance.
2. Having the ability to understand the process, employing professional methods, from problem formulation to solution and the skill to devise and develop practical solutions for real issues concerning the safety assessment of food and the maintenance of global health.
3. Having the ability to engage in service to humanity and society with an international perspective, demonstrating the ability to adapt to different cultures.
4. Having the ability in effective communication and to take on leadership roles in international initiatives.
5. Having the ability to foster creativity and drive innovation through a combination of interdisciplinary education and advanced practical research.
6. Developing a cross-disciplinary mindset that extends beyond one's specialized field.

### ② Review Board Composition

The degree examination committee, comprising faculty members from the University of Tsukuba, National Taiwan University, and the University of Bordeaux, will appoint one chief examiner from the student's home university and two sub-examiners from the other two universities.

### ③ Evaluation Method and Criteria

The three examiners will assess the written comprehensive report, oral presentation, and oral examination related to the specific subject research, providing a comprehensive judgment of either pass or fail.

## Curriculum Policy

### Curriculum organization policy

#### <Overall Policy>

In addition to cultivating specialized skills related to the efficacy and safety of food resources and health foods for living organisms, the curriculum is organized and implemented with a view to food production and processing. Class subjects are divided into "General Foundation Subjects" to cultivate academic and management fundamentals related to food and health, "Major Subjects I" to cultivate the ability to discover and solve problems through practical learning and the qualities of advanced professionals, and "Major Subjects II" to cultivate expertise in health and food resources. In addition, based on the objective of fostering international advanced professionals with specialized and practical skills who can bridge the gap between global society and research and development, practical learning such as field activities and internships will be emphasized.

In order to emphasize the importance of cultivating the ability to conduct appropriate research and analysis on real issues related to "food and health" and to make proposals with practical and pragmatic effectiveness, this department requires the preparation of a "research report on specific issues" as the result of research on specific issues, rather than a master's dissertation. In addition, in order to maximize the merits of the international cooperative educational program among the three universities of Tsukuba University, the University of Bordeaux, and National Taiwan University, the curriculum has been designed so that students can learn the basics of medical science at Tsukuba University in the first semester, and based on that, can study advanced topics on food and health at National Taiwan University and the University of Bordeaux in the second and third semesters. The curriculum is designed so that all students will spend the first semester at the University, the second semester at National Taiwan University, and the third semester at the University of Bordeaux. In the fourth semester, students will study mainly at one of the three universities based on the theme of their specific research project and their career aspirations after completion.

#### <Learning objectives for each semester>

In order for the three universities to collaborate and organize and implement a systematic curriculum in sequence according to the purpose of human resource development in this major, the abilities to be cultivated in each semester are as follows.

#### 【Semester 1 / University of Tsukuba】

- Basic professional skills in health and food resources, professional skills in evaluation of biological effects and safety of substances, entrepreneurial spirit, management skills, and professional English skills

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**【Semester 2 / National Taiwan University】**

- Expertise in health and food resources, ability to identify and solve problems in the Asian social and natural environment, basic R&D and project management skills in Asian companies

**【Semester 3 / University of Bordeaux】**

- Expertise in the connection between health and food resources and the evaluation and development of food resources, ability to identify and solve problems in the European social and natural environment, European corporate affairs and food safety policy, career development and professional awareness

**【Semester 4 / Home University】**

- More specialized skills according to the research theme, enhanced career path through corporate internship, practical skills for post-graduation career

<Policy on the arrangement of courses>

**【General Foundation Subjects】**

- In order to formulate a two-year study plan by grasping the competencies and learning content in this program, "Agro-Biomedical Science Group seminar" is arranged as a compulsory subject. (Semester 1 / University of Tsukuba)
- In order to develop systematic basic knowledge and the ability to understand and think from the big picture, "Introduction of Agro-Biomedical Science" is a compulsory subject. (Semester 1 / University of Tsukuba)
- "Basic Molecular Nutrition" is a compulsory subject to develop the basic professional skills common to all majors. (Semester 1 / University of Tsukuba)
- In order to cultivate the foundation of management, there are courses related to "Entrepreneurship", and at least 4 credits are required. (Semester 1 / University of Tsukuba / Semester 2 / National Taiwan University)
- In order to foster career development and job awareness, "Job or Internship Hunting Including Technological Watch" is a compulsory subject. (Semester 3 / University of Bordeaux)
- At least one unit of specialized English is required. (Semester 1 / University of Tsukuba)

**【Major Subjects I】**

- To cultivate the ability to find and solve problems in a social and natural environment that differs from one's own, "Fusion of Field and Laboratory Studies" will be arranged at the two partner foreign graduate schools. (2nd semester, National Taiwan University / 3rd semester / University of Bordeaux)
- Common seminar courses include "Agro-Biomedical Science Laboratory Seminar I "Basic Toxicology" (1st semester, University of Tsukuba), "Agro-Biomedical Science Laboratory Seminar II" (2nd semester, National Taiwan University), and "International Scientific Seminars" (3rd semester, University of Bordeaux).
- As common practical and experimental subjects, "Research and Development for Agro-Biomedical Science I" (1st semester / University of Tsukuba), "Research and Development for Agro-Biomedical Science II" (2nd semester / National Taiwan University), and "Integrative Unit with Omic and Bioinformatic Tools" (3rd semester / University of Bordeaux) will be arranged.
- In order to learn about actual R&D in companies and the basics of project management, "Corporate Internship" will be established in three universities, and at least one of them will be compulsory. In addition, "Biomedical Translation Boot Camp" (2nd semester/ National Taiwan University) will be arranged to strengthen the skills to tackle social and environmental related issues in R&D.

**【Major Subjects II】**

- In the first semester (Tsukuba University), "Critical Path Research Management" "Cancer Biology" "Human Pathology and Oncology," "Health Care Policy and Management", "Advanced Course on Global Food Security" and "Advanced Food System" will be placed as "Health and Food Resources Subject Group I" in order to develop specialized skills related to health and food resources, focusing on expertise in evaluating the efficacy and safety of substances on living organisms.
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	<ul style="list-style-type: none"> <li>• In order to develop professional skills in health and food resources, focusing on specialized knowledge of bioscience and technology related to living organisms and food resources, the following courses will be held in the second semester as "Health and Food Resources Subject Group II" (National Taiwan University): "Contemporary Issues in Global Health", "Cellular Network of Biological Molecules", "Principle and Application in Health Research Methods", "Environmental and Occupational Health", "Measuring Burden of Disease: Methods and Applications", "Molecular Nutrition", "Agriculture of Taiwan", "Biotechnology in Milk Products" and "Applied Translational Microbiology".</li> <li>• In order to develop in-depth expertise in health and food resources with a focus on the link between health and food resources and the evaluation and development of food resources, the following courses will be offered in the third semester (University of Bordeaux) as "Health and Food Resources Subject Group III": "Water and Food-borne Microbiological Diseases and Dietary Habits in Human Population", "Nutrition, Microbiome and Immunity", "Nutrition, Physiological Regulation and Major Human Diseases", "Nutrition, Biological Regulation and Major Diseases", "Nutrition and Health Organization in Europe", "Impact of Environmental Stresses on Crops Production", "Integrated and Advanced Plant Breeding", "Green Biotechnology", and "Quality of Animal-based Foodstuff".</li> <li>• In the fourth semester, there are no courses offered by this department as "Major Subjects II," but students may take courses offered by other departments if deemed necessary in relation to the theme of the Special Subject Research.</li> </ul>
Learning methods • Processes	<ul style="list-style-type: none"> <li>• Students will study at Tsukuba University for the first semester, National Taiwan University for the second semester, University of Bordeaux for the third semester, and at their choice of one of the three universities for the fourth semester.</li> <li>• Students must earn at least 15 credits from required and elective courses at each university during the first three semesters, for a total of 45 credits. In addition, students are required to earn the credits of the internship course offered by their home university during the fourth semester.</li> <li>• Each student will be assigned three academic advisors, one from each university, and will study and conduct research in accordance with the theme of the specific subject research under the guidance of the academic advisor during each semester.</li> </ul>
Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Students will submit a proposal for a specific research theme in the first semester, and their supervisors will provide appropriate advice and guidance.</li> <li>• Students will submit a proposal for a specific research plan in the second semester, and their supervisors will provide appropriate advice and guidance.</li> <li>• In the third semester, students give oral presentations and oral examinations on the progress of their specified subject research, and three examiners selected from the Degree Examination Committee (one from each university) and their supervisors provide appropriate advice and guidance for the completion of the specified subject research.</li> <li>• In the fourth semester, students will submit a report on their specific research project, and will make an oral presentation and take an oral examination based on the submitted report. Three examiners selected from the Degree Examination Committee (one primary examiner and two secondary examiners, one from each university) will examine the report, oral presentation, and oral examination.</li> </ul>
Admission Policy	
Desired students	We seek individuals with a background in medical science or bioresource science, a spirit of collaboration, and a strong will to actively address global issues related to health and food across borders and academic disciplines, and to create innovations that contribute to the future vision of humanity and society.

Application documents will be accepted at each university. At the time of acceptance, the three universities will mutually confirm that the applicants meet the qualifications for application. The first stage of the selection process will be a document review and group discussion at the university that received the application, and the second stage of the selection process will be an interview with faculty members from the three universities.

<First round of selection>

At the university where the application is received, documents will be screened based on the application documents, followed by a group discussion. In the first round of the selection process, in addition to the requirements common to all three universities, the university conducting the first round of the selection process may, at its discretion, conduct preliminary interviews and other necessary screening.

The documents to be screened shall include the applicant's motivation for application, research plan, academic records and graduation certificate of the applicant's home university (bachelor's course), recommendation letter, and documents certifying English proficiency. These documents will be used to confirm the content and results of the candidate's study in the bachelor's course, the purpose and plan of study in this major, career plans after completion, English proficiency, etc., and to evaluate the candidate's background in "food and health," will to solve global-scale issues related to "food and health," and aptitude for internationality and interdisciplinarity. The evaluation items will include the applicant's motivation for applying, the applicant's desire to solve global issues related to food and health, and the applicant's aptitude for international and interdisciplinary perspectives. The evaluation items will be motivation, research plan, study plan, career plan, and writing skills, and will be scored by multiple judges. For English proficiency, TOEFL-iBT: 61 or higher, TOEIC: 600 or higher, IELTS: 5.0 or higher are required for application.

Group discussions will be held on the theme of global issues related to food and health. A topic will be provided before the start of the group discussion, and several examinees and one faculty member will form a group to discuss the solutions. In this way, the ability of the candidates to apply their background in medical science or bioresource science to the issues, and their communication skills to proceed with things jointly will be evaluated. The evaluation items will be the level of understanding of global issues related to food and health, ability to speak up, listening to others, coherence of statements, and contribution to the discussion, and will be scored by multiple judges.

The academic background of the candidates in the field of "Food and Health" will be evaluated based on the subjects taken in the bachelor's course and their grades, the research plan, and the contents of the group discussion, to ensure that they have a basic background in the field of medical science and bioresource science.

<Second round of selection>

Interviews will be conducted by faculty members of the three universities. The interview will be held at the university that received the application, and the other two universities will participate via video conference system. At the interview, the applicant's suitability for the program will be evaluated through questions and answers concerning the purpose and plan of study at the program, basic knowledge of "food and health," career plans after completion of the program, and experience in extracurricular and social activities. The evaluation items are motivation for application, research and study plan, career plan, presentation, and question and answer session, which will be graded by multiple judges.

Finally, the results of the document review, group discussion, and interview will be comprehensively evaluated by the three universities to determine acceptance or rejection.

Through the above selection process, we will secure students who have a strong academic background in "food and health" and a strong will to solve problems through collaboration, interdisciplinarity, and internationality, and who are appropriate for the goal of development and the educational program of this department.

# School of Integrative and Global Majors

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Ph.D. Program in Humanics

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## Ph.D. Program in Humanics

Name of the degree to be conferred	Doctor of Philosophy in Medical Sciences
Educational purpose	Humanics is an academic discipline that focuses on the fundamental principles of physiology and pathology of the human, generating new science and technology to achieve a healthy and comfortable life of human beings in the society. In this program, we cultivate leaders with skills in the fields of both biomedical sciences and physical sciences/engineering/informatics, as well as the capacity to integrate two or more research fields and to tackle flexibly and multifacetedly to the unpredictable future based on their bidisciplinary expertise and research skills.
Vision of human resources development	Students who complete this program will be outstanding leaders with the bidisciplinary expertise to incorporate the latest knowledge and technologies in biomedical sciences and physical sciences/engineering/informatics, talk with each other using the languages of both fields, conceive of new paradigms through a deep understanding of both fields, and integrate them.

### Diploma Policy

The degree of Doctor of Philosophy in Medical Sciences is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Bidisciplinary perspective ability	① The ability to accurately identify the essence of unpredictable humanics issues. ② The ability to propose solutions flexibly and multifacetedly based on the bidisciplinary expertise.
7. Bidisciplinary design ability	① The ability to identify original fusion research projects in the field of humanics. ② To have the knowledge and skills to obtain excellent research results in the fields of humanics.

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| 8. Bidisciplinary outcome ability | ① The ability to design the research plan and tackle to the humanics projects persistently with high motivation and ethical standards.<br>② The ability to explain the academic and social significance of the research findings and envision their commercialization. |
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#### Dissertation evaluation criteria

- 1) To pass the Qualifying Examination (QE).
- 2) To achieve the certain level in the portfolio-based achievement assessment system.
- 3) To have the English and communication skills to negotiate freely in the international community.
- 4) To understand social demands in the field of medicine, and identify the research question for the dissertation that can be solved by integrating biomedical sciences and physical sciences/engineering/informatics. They are also able to independently identify research questions that are expected to be overcome in the future based on the results of their dissertation.
- 5) To have a firm will and a sincere attitude to tackle the humanics projects, and complete the research findings on their own in a dissertation.
- 6) To publish research articles that are highly renowned internationally by the academic and industrial communities.
- 7) To explain what is necessary to implement research findings in society.

#### Curriculum Policy

The curriculum in humanics program cultivates a firm will to identify the essence of humanics research, bidisciplinary expertise in both medical sciences and physical sciences/engineering/informatics, an understanding of the basic technologies of humanics research and the global situation in this field, the ability to independently identify issues that could lead to paradigm shift, and the ability to solve these issues with sincerity and diligence.

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| Policy of curriculum organization | <ul style="list-style-type: none"> <li>• In the Common Subjects, we cultivate strong motivation, sincere attitude, rigid ethics, and international communication skills to become leaders in the world through courses including the study of research ethics, entrepreneurship education, internships, and overseas laboratory rotation.</li> <li>• In the Basic Specialized Subjects, students learn basic and clinical medicine, as well as physical sciences, engineering, and informatics, through lectures and practical courses that combine e-learning and problem-based learning (PBL), and cultivate the bidisciplinary expertise required for humanics study.</li> <li>• In the Humanics Specialized Subjects, students choose mentors from both biomedical sciences and physical sciences/engineering/informatics and acquire specialized knowledge and skills through the double-mentoring system based on collaboration among mentors.</li> </ul> |
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| Learning methods · Processes | <p>The standard course schedule is shown below.</p> <ul style="list-style-type: none"> <li>• Humanics Forum provides opportunities to 1st grade students to confirm the research plan for Ph.D. dissertation.</li> <li>• A mentor for the sub-field will be selected within 6 months after enrollment.</li> <li>• By the end of the second year, students must earn more than 35 credits from compulsory and elective subjects and pass the Qualifying Examination (QE).</li> <li>• After the QE, the progress will be presented to the dissertation committee once or twice a year.</li> <li>• Students, who passed the QE and earned more than 45 credits from compulsory and elective subjects, must pass the preliminary dissertation examination to qualify the dissertation examination requirements.</li> <li>• The dissertation will be evaluated in peer review and oral examination.</li> </ul> |
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Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Initiation seminar and Humanics forum in the first year will help students confirm their research plans for dissertation study.</li> <li>• Qualifying Examination (QE) will be conducted by the end of the second year. The QE will be conducted to confirm the bidisciplinary expertise and the ability to promote research in the field of humanics.</li> <li>• In the fifth year, a final examination (oral examination) will be held to confirm the students' expertise and research skills in the field of humanics, as well as their ability to identify research questions.</li> </ul>
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#### 【System for awarding degrees】

The Qualifying Examination will be held as follows.

- QE is offered by the end of the second year to those who have earned (or expected to earn) more than 35 credits including all compulsory subjects.
- Bidisciplinary expertise in biomedical sciences and one of physical sciences/engineering/informatics, and the ability to understand the basic techniques of humanics research and the global situation in this field, and to propose a research plan for a humanics problem will be evaluated.

The examination for the Ph.D. in Medical Sciences will be conducted as follows.

- Students who have earned (or expected to earn) more than 45 credits, passed the QE and preliminary examination, and qualified the certain level of achievement in the portfolio-based assessment.
- The dissertation is evaluated in peer review and the final examination (oral examination), and those who pass these examinations will receive the Ph.D. in Medical Sciences.
- The dissertation committee will be organized by faculty members from biomedical sciences, physical sciences/engineering/informatics, and industry. Students will be evaluated on their ability to integrate bidisciplinary expertise in the field of humanics, their ability to independently identify issues that could lead to a paradigm shift, their ability to solve problems with integrity and sincere attitude and their ability to disseminate their findings to society and implement them.

#### Admission Policy

Desired students	<p>We are looking for students who have a strong will to contribute to the future of human beings through the discovery and resolution of issues that could be a paradigm shift in the field of humanics, and who meet one of the following criteria</p> <ul style="list-style-type: none"> <li>• Students have basic knowledge and skills in biomedical sciences or clinical medicine, as well as a strong interest in interdisciplinary research in physical sciences/engineering/informatics.</li> <li>• Students have basic knowledge and skills in one of the fields of physical sciences, engineering, or informatics, as well as a strong interest in interdisciplinary research in the field of biomedical sciences or clinical medicine.</li> </ul>
Selection policy	<p>The humanics program integrates the knowledge and skills of biomedical sciences, and physical sciences/engineering/informatics to lead a paradigm-shift for overcoming the life and health problems facing human beings. Taking advantage of the characteristics of this program, we will evaluate the applicants on the selection criteria based on expertise in the fields of biomedical sciences and physical sciences/engineering/informatics, advanced creativity, internationality, and the ability to explain to non-specialist researchers. Applicants need to submit a research proposal in English that integrates the fields of biomedical sciences and physical sciences/engineering/informatics, and the research proposal will be evaluated through the oral examination by faculty members from different fields of expertise.</p>

## Ph.D. Program in Humanics

Name of the degree to be conferred	Doctor of Philosophy in Science
Educational purpose	Humanics is an academic discipline that focuses on the fundamental principles of physiology and pathology of the human, generating new science and technology to achieve a healthy and comfortable life of human beings in the society. In this program, we cultivate leaders with skills in the fields of both biomedical sciences and physical sciences/engineering/informatics, as well as the capacity to integrate two or more research fields and to tackle flexibly and multifacetedly to the unpredictable future based on their bidisciplinary expertise and research skills.
Vision of human resources development	Students who complete this program will be outstanding leaders with the bidisciplinary expertise to incorporate the latest knowledge and technologies in biomedical sciences and physical sciences/engineering/informatics, talk with each other using the languages of both fields, conceive of new paradigms through a deep understanding of both fields, and integrate them.

### Diploma Policy

The degree of Doctor of Philosophy in Science is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Bidisciplinary perspective ability	① The ability to accurately identify the essence of unpredictable humanics issues. ② The ability to propose solutions flexibly and multifacetedly based on the bidisciplinary expertise.
7. Bidisciplinary design ability	① The ability to identify original fusion research projects in the field of humanics. ② To have the knowledge and skills to obtain excellent research results in the fields of humanics.

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| 8. Bidisciplinary outcome ability | ① The ability to design the research plan and tackle to the humanics projects persistently with high motivation and ethical standards.<br>② The ability to explain the academic and social significance of the research findings and envision their commercialization. |
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#### Dissertation evaluation criteria

- 1) To pass the Qualifying Examination (QE).
- 2) To achieve the certain level in the portfolio-based achievement assessment system.
- 3) To have the English and communication skills to negotiate freely in the international community.
- 4) To understand social demands in the field of medicine, and identify the research question for the dissertation that can be solved by integrating sciences and biomedical sciences. They are also able to independently identify research questions that are expected to be overcome in the future based on the results of their dissertation.
- 5) To have a firm will and a sincere attitude to tackle the humanics projects, and complete the research findings on their own in a dissertation.
- 6) To publish research articles that are highly renowned internationally by the academic and industrial communities.
- 7) To explain what is necessary to implement research findings in society.

#### Curriculum Policy

The curriculum in humanics program cultivates a firm will to identify the essence of humanics research, bidisciplinary expertise in both sciences and biomedical sciences, an understanding of the basic technologies of humanics research and the global situation in this field, the ability to independently identify issues that could lead to paradigm shift, and the ability to solve these issues with sincerity and diligence.

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| Policy of curriculum organization | <ul style="list-style-type: none"> <li>• In the Common Subjects, we cultivate strong motivation, sincere attitude, rigid ethics, and international communication skills to become leaders in the world through courses including the study of research ethics, entrepreneurship education, internships, and overseas laboratory rotation.</li> <li>• In the Basic Specialized Subjects, students learn basic and clinical medicine, as well as sciences, through lectures and practical courses that combine e-learning and problem-based learning (PBL), and cultivate the bidisciplinary expertise required for humanics study.</li> <li>• In the Humanics Specialized Subjects, students choose mentors from both sciences and biomedical sciences and acquire specialized knowledge and skills through the double-mentoring system based on collaboration among mentors.</li> </ul> |
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| Learning methods · Processes | <p>The standard course schedule is shown below.</p> <ul style="list-style-type: none"> <li>• Humanics Forum provides opportunities to 1st grade students to confirm the research plan for Ph.D. dissertation.</li> <li>• A mentor for the sub-field will be selected within 6 months after enrollment.</li> <li>• By the end of the second year, students must earn more than 35 credits from compulsory and elective subjects and pass the Qualifying Examination (QE).</li> <li>• After the QE, the progress will be presented to the dissertation committee once or twice a year.</li> <li>• Students, who passed the QE and earned more than 45 credits from compulsory and elective subjects, must pass the preliminary dissertation examination to qualify the dissertation examination requirements.</li> <li>• The dissertation will be evaluated in peer review and oral examination.</li> </ul> |
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Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Initiation seminar and Humanics forum in the first year will help students confirm their research plans for dissertation study.</li> <li>• Qualifying Examination (QE) will be conducted by the end of the second year. The QE will be conducted to confirm the bidisciplinary expertise and the ability to promote research in the field of humanics.</li> <li>• In the fifth year, a final examination (oral examination) will be held to confirm the students' expertise and research skills in the field of humanics, as well as their ability to identify research questions.</li> </ul>
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#### 【System for awarding degrees】

The Qualifying Examination will be held as follows.

- QE is offered by the end of the second year to those who have earned (or expected to earn) more than 35 credits including all compulsory subjects.
- Bidisciplinary expertise in sciences and biomedical sciences, and the ability to understand the basic techniques of humanics research and the global situation in this field, and to propose a research plan for a humanics problem will be evaluated.

The examination for the Ph.D. in Science will be conducted as follows.

- Students who have earned (or expected to earn) more than 45 credits, passed the QE and preliminary examination, and qualified the certain level of achievement in the portfolio-based assessment.
- The dissertation is evaluated in peer review and the final examination (oral examination), and those who pass these examinations will receive the Ph.D. in Science.
- The dissertation committee will be organized by faculty members from biomedical sciences, physical sciences/engineering/informatics, and industry. Students will be evaluated on their ability to integrate bidisciplinary expertise in the field of humanics, their ability to independently identify issues that could lead to a paradigm shift, their ability to solve problems with integrity and sincere attitude and their ability to disseminate their findings to society and implement them.

#### Admission Policy

Desired students	<p>We are looking for students who have a strong will to contribute to the future of human beings through the discovery and resolution of issues that could be a paradigm shift in the field of humanics, and who meet one of the following criteria</p> <ul style="list-style-type: none"> <li>• Students have basic knowledge and skills in biomedical sciences or clinical medicine, as well as a strong interest in interdisciplinary research in physical sciences/engineering/informatics.</li> <li>• Students have basic knowledge and skills in one of the fields of physical sciences, engineering, or informatics, as well as a strong interest in interdisciplinary research in the field of biomedical sciences or clinical medicine.</li> </ul>
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Selection policy	<p>The humanics program integrates the knowledge and skills of biomedical sciences, and physical sciences/engineering/informatics to lead a paradigm-shift for overcoming the life and health problems facing human beings. Taking advantage of the characteristics of this program, we will evaluate the applicants on the selection criteria based on expertise in the fields of biomedical sciences and physical sciences/engineering/informatics, advanced creativity, internationality, and the ability to explain to non-specialist researchers. Applicants need to submit a research proposal in English that integrates the fields of biomedical sciences and physical sciences/engineering/informatics, and the research proposal will be evaluated through the oral examination by faculty members from different fields of expertise.</p>
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## Ph.D. Program in Humanics

Name of the degree to be conferred	Doctor of Philosophy in Engineering
Educational purpose	Humanics is an academic discipline that focuses on the fundamental principles of physiology and pathology of the human, generating new science and technology to achieve a healthy and comfortable life of human beings in the society. In this program, we cultivate leaders with skills in the fields of both biomedical sciences and physical sciences/engineering/informatics, as well as the capacity to integrate two or more research fields and to tackle flexibly and multifacetedly to the unpredictable future based on their bidisciplinary expertise and research skills.
Vision of human resources development	Students who complete this program will be outstanding leaders with the bidisciplinary expertise to incorporate the latest knowledge and technologies in biomedical sciences and physical sciences/engineering/informatics, talk with each other using the languages of both fields, conceive of new paradigms through a deep understanding of both fields, and integrate them.

### Diploma Policy

The degree of Doctor of Philosophy in Engineering is commenced to those who have fulfilled the requirements for the completion of the Doctoral programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Knowledge creation competence: Ability to create new knowledge that can contribute to future society	① Are there any research findings that can be considered new knowledge? ② Can we expect you to create knowledge that will contribute to future society?
2. Management competence: Ability to plan and implement measures to identify and solve challenges from a higher perspective	① Can you make and implement long-term plans for critical challenges? ② Can you identify challenges, even in other areas of expertise, and solve them from a higher perspective?
3. Communication competence: Ability to express the true nature of academic findings positively and clearly	① Can you explain the true nature of research content and specialized knowledge clearly and logically to researchers from different areas and to people other than researchers? ② Do you proactively share your findings with researchers and experts from your field of expertise and accurately answer questions?
4. Leadership competence: Ability to have objectives get accomplished under your leadership	① Can you set attractive and compelling goals? ② Are you capable of building systems to realize goals and accomplish objectives as the leader?
5. Internationality competence: Possession of a high level of awareness and motivation to be internationally active and contribute to international society	① Do you have strong awareness and motivation to contribute to international society and international activities? ② Have you obtained adequate linguistic skills for international information collection and action?
6. Bidisciplinary perspective ability	① The ability to accurately identify the essence of unprecidatable humanics issues. ② The abitliy to propose solutions flexibly and multifacetedly based on the bidisciplinary expertise.

7. Bidisciplinary design ability	① The ability to identify original fusion research projects in the field of humanics. ② To have the knowledge and skills to obtain excellent research results in the fields of humanics.
8. Bidisciplinary outcome ability	① The ability to design the research plan and tackle to the humanics projects persistently with high motivation and ethical standards. ② The ability to explain the academic and social significance of the research findings and envision their commercialization.

#### Dissertation evaluation criteria

- 1) To pass the Qualifying Examination (QE).
- 2) To achieve the certain level in the portfolio-based achievement assessment system.
- 3) To have the English and communication skills to negotiate freely in the international community.
- 4) To understand social demands in the field of medicine, and identify the research question for the dissertation that can be solved by integrating engineering/informatics and biomedical sciences. They are also able to independently identify research questions that are expected to be overcome in the future based on the results of their dissertation.
- 5) To have a firm will and a sincere attitude to tackle the humanics projects, and complete the research findings on their own in a dissertation.
- 6) To publish research articles that are highly renowned internationally by the academic and industrial communities.
- 7) To explain what is necessary to implement research findings in society.

#### Curriculum Policy

The curriculum in humanics program cultivates a firm will to identify the essence of humanics research, bidisciplinary expertise in both engineering/informatics and biomedical sciences, an understanding of the basic technologies of humanics research and the global situation in this field, the ability to independently identify issues that could lead to paradigm shift, and the ability to solve these issues with sincerity and diligence.

Policy of curriculum organization	<ul style="list-style-type: none"> <li>• In the Common Subjects, we cultivate strong motivation, sincere attitude, rigid ethics, and international communication skills to become leaders in the world through courses including the study of research ethics, entrepreneurship education, internships, and overseas laboratory rotation.</li> <li>• In the Basic Specialized Subjects, students learn basic and clinical medicine, as well as engineering/informatics, through lectures and practical courses that combine e-learning and problem-based learning (PBL), and cultivate the bidisciplinary expertise required for humanics study.</li> <li>• In the Humanics Specialized Subjects, students choose mentors from both engineering/informatics and biomedical sciences and acquire specialized knowledge and skills through the double-mentoring system based on collaboration among mentors.</li> </ul>
Learning methods • Processes	<p>The standard course schedule is shown below.</p> <ul style="list-style-type: none"> <li>• Humanics Forum provides opportunities to 1st grade students to confirm the research plan for Ph.D. dissertation.</li> <li>• A mentor for the sub-field will be selected within 6 months after enrollment.</li> <li>• By the end of the second year, students must earn more than 35 credits from compulsory and elective subjects and pass the Qualifying Examination (QE).</li> <li>• After the QE, the progress will be presented to the dissertation committee once or twice a year.</li> <li>• Students, who passed the QE and earned more than 45 credits from compulsory and elective subjects, must pass the preliminary dissertation examination to qualify the dissertation examination requirements.</li> <li>• The dissertation will be evaluated in peer review and oral examination.</li> </ul>

Evaluation of learning outcomes	<ul style="list-style-type: none"> <li>• Initiation seminar and Humanics forum in the first year will help students confirm their research plans for dissertation study.</li> <li>• Qualifying Examination (QE) will be conducted by the end of the second year. The QE will be conducted to confirm the bidisciplinary expertise and the ability to promote research in the field of humanics.</li> <li>• In the fifth year, a final examination (oral examination) will be held to confirm the students' expertise and research skills in the field of humanics, as well as their ability to identify research questions.</li> </ul>
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#### 【System for awarding degrees】

The Qualifying Examination will be held as follows.

- QE is offered by the end of the second year to those who have earned (or expected to earn) more than 35 credits including all compulsory subjects.
- Bidisciplinary expertise in engineering/informatics and biomedical sciences, and the ability to understand the basic techniques of humanics research and the global situation in this field, and to propose a research plan for a humanics problem will be evaluated.

The examination for the Ph.D. in Engineering will be conducted as follows.

- Students who have earned (or expected to earn) more than 45 credits, passed the QE and preliminary examination, and qualified the certain level of achievement in the portfolio-based assessment.
- The dissertation is evaluated in peer review and the final examination (oral examination), and those who pass these examinations will receive the Ph.D. in Engineering.
- The dissertation committee will be organized by faculty members from biomedical sciences, physical sciences/engineering/informatics, and industry. Students will be evaluated on their ability to integrate bidisciplinary expertise in the field of humanics, their ability to independently identify issues that could lead to a paradigm shift, their ability to solve problems with integrity and sincere attitude and their ability to disseminate their findings to society and implement them.

#### Admission Policy

Desired students	<p>We are looking for students who have a strong will to contribute to the future of human beings through the discovery and resolution of issues that could be a paradigm shift in the field of humanics, and who meet one of the following criteria</p> <ul style="list-style-type: none"> <li>• Students have basic knowledge and skills in biomedical sciences or clinical medicine, as well as a strong interest in interdisciplinary research in physical sciences/engineering/informatics.</li> <li>• Students have basic knowledge and skills in one of the fields of physical sciences, engineering, or informatics, as well as a strong interest in interdisciplinary research in the field of biomedical sciences or clinical medicine.</li> </ul>
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Selection policy	<p>The humanics program integrates the knowledge and skills of biomedical sciences, and physical sciences/engineering/informatics to lead a paradigm-shift for overcoming the life and health problems facing human beings. Taking advantage of the characteristics of this program, we will evaluate the applicants on the selection criteria based on expertise in the fields of biomedical sciences and physical sciences/engineering/informatics, advanced creativity, internationality, and the ability to explain to non-specialist researchers. Applicants need to submit a research proposal in English that integrates the fields of biomedical sciences and physical sciences/engineering/informatics, and the research proposal will be evaluated through the oral examination by faculty members from different fields of expertise.</p>
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## **Tsukuba Standards**

The University of Tsukuba has formulated two sets of "Tsukuba Standards" for Undergraduate Schools and Colleges and the other for Graduate Schools and Programs, which are widely announced to the public as the University's educational declaration.

### **I Tsukuba Standards for Undergraduate Schools and Colleges**

In addition to setting forth the educational goals of our bachelor programs and the university-wide measures for achieving them, it also clearly states the goals of the liberal arts education and the specific educational content for achieving them, the Diploma Policy and Curriculum Policy, and the measures for guaranteeing the quality of education in each educational organization.

### **I Tsukuba Standards for Graduate Schools and Programs**

In addition to setting forth the educational goals of our graduate schools and programs and the university-wide measures for achieving them, the Diploma Policy and Curriculum Policy and the policy for guaranteeing the quality of education in each educational organization are clearly stated.

#### **University of Tsukuba**

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#### **Tsukuba Standards for Graduate Schools and Programs**

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