



WASEDA University

# Research Activities

早稲田大学



# Waseda that Shines on the World Stage as an International Research University

## Focusing on creating an environment where researchers from all over the world gather and improve each other under the pillar of “Research Waseda”

As the 17th president of Waseda University, I have said that my biggest task is to transform Waseda into a leading university that shines on the world stage. To fulfill that, we need to take over the Waseda Vision 150 mid-to-long term strategic plan and take it to its next phase. In envisioning a new grand design, we have established the three pillars of Waseda's research, education, and social contribution, with our research positioned as the most important endeavor. We will attract respected researchers from around the world to Waseda University to conduct high-quality research activities, and reflect those results in education to foster excellent students and outstanding young researchers to further enhance research. My aim is to create such a virtuous circle.

Looking back on history, Waseda was the first university to establish a Faculty of Science and Engineering in Japan and has emphasized collaboration between science and engineering. Recently, progress has been made in collaboration with biomedical sciences. In the future, collaboration in social sciences, the humanities, and natural sciences will also become important. I expect that the strength of Waseda University's environment that enables interdisciplinary research beyond faculties and fields, such as the Center for Data Science, will be demonstrated to a greater extent than ever.

Waseda University will continue to actively promote research that fuses the humanities, social sciences and sciences in response to the demands of the times and will continue to strive to apply those results in the real world. I cherish this fundamental attitude that stems from the founding principles of the university and will tirelessly push forward to realize Waseda's 2032 research vision of “research that contributes to realization of global peace and human happiness.”

President, Waseda University

## Aiji Tanaka

17th president of Waseda University. Dr. Tanaka completed his undergraduate studies at the School of Political Science and Economics at Waseda University in 1975 and later did his graduate studies at Ohio State University where he received his Ph.D. in 1985. He was an assistant professor at Toyo Eiwa University, professor at Aoyama Gakuin University, and professor at the Faculty of Political Science and Economics at Waseda prior to becoming president. He also served as dean of the Academic Affairs Division at Waseda from 2006 and as the chairman of the International Political Science Association.



# Research A

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## The Founding Spirit of Waseda University

Waseda University started life as Tokyo Senmon Gakko (Tokyo College) in 1882 by Shigenobu Okuma. Since then, with the aim of realizing Shigenobu Okuma's ideal of developing an institution of higher education that is comparable with government institutions, Waseda University has steadily developed as one of the leading private institutions of Japan. Our history is underpinned by the three founding principles, centered around "Independence of Learning," and the policies including "the spirit of progressivism," "the outsider's spirit," and "harmony between Eastern and Western civilizations."

With this history as the foundation, and based on the "Waseda Vision 150" drawn up in the autumn of 2012, we have continued to move forward so as to remain as "Waseda," a global leader in university education.

## Waseda's three founding principles

On Waseda University's 30th anniversary in October 1913, President Shigenobu Okuma proclaimed its newly adopted Mission Statement.

Waseda University holds as its founding principles the preservation of the independence of scholarship, the promotion of the practical application of scholarship, and the fostering of good citizens.

*Holding the independence of scholarship as a central principle, Waseda University pledges to contribute to the scholarship of the world by regarding freedom of research as essential and devoting itself constantly to original research.*

*Holding the practical application of scholarship as a central principle, Waseda University pledges to contribute to the progress of the times by establishing a path for the practical use of scholarship as well as pursuing theoretical research for its own sake.*

*Holding the fostering of good citizens as a central principle, Waseda University pledges to cultivate people of character who can respect individuality, develop themselves and their families, benefit the nation and society, and be active in the world at large.*

Striving to realize the founding principles in a way that is fitting for modern society

From the three founding principles to

## Waseda Vision 150

### Independence of Learning

#### The Principle on which the Contribution to the World is Made

To be free from any restriction and have a free spirit of criticism, fixing your eyes upon the nature of things you see, is what serves as the foundation of the independence of learning. Waseda University shall contribute to the creation of knowledge and the development of learning by conducting research and investigation in the fields of humanities, social science, and natural science - and any field integrating them - in an environment where students and members of the faculty interact independently and freely, and by disseminating the outcomes to the world at large.

### Practical Utilization of Knowledge

#### Ways and Means of Contributing to the World

Academic research will find its way for further development when we step outside the world of academic research and learning and carve ways of utilizing the knowledge gained there for culture, society, and industry. In addition to educational and research activities at the undergraduate and graduate schools, Waseda University shall work to enhance education for professionals and life-long education, creating a new era through the interaction of theoretical studies and the application of theories supported by such studies in practice.

### Creation of Good Citizenship

#### People Contributing to the World

It is students that universities send out to society that constitute the most significant outcome of university education. Waseda University shall educate global citizens with sufficient knowledge, moral character, and courage and, moreover, physical strength and flexible sensitivity, to be able to break through the situation, no matter where they are in the world and no matter how difficult the situation may look, by their own will and in cooperation with others surrounding them.

## Four visions from "Waseda Vision 150"

- |                 |   |
|-----------------|---|
| <b>Vision 1</b> | Students of the Highest Caliber and Character Who Show Promise in Being Able to Contribute to the World |
| <b>Vision 2</b> | Research That Will Ultimately Contribute to Real World Peace and Happiness in Human Society             |
| <b>Vision 3</b> | Graduates Who Will Contribute to the Public Good as Global Leaders                                      |
| <b>Vision 4</b> | Asia's Premier "Model University" Adaptable to a Changing World   |

# ctivities



# History of Waseda University

# History

- 1882** Tokyo Senmon Gakko (College) founded by Shigenobu Okuma with the Departments of Political Science, Law, English, and Physical Science.
- 1890** Department of Literature established.
- 1900** Faculty members sent to Europe and America for the first time under the newly-established Foreign Travel Scholarships for faculty members.
- 1902** University Library building completed. Acquisition of university status. Renamed Waseda University, the institution comprised Schools of Political Science & Economics, Law, and Literature, seven senmon-bu (junior colleges), and a single graduate school.
- 1903** School of Education established.
- 1904** University status acquired under Senmon Gakko School Act. School of Commerce established.
- 1905** School for Chinese students established (closed in 1910).
- 1908** School of Science and Engineering established.
- 1920** Chartered under the newly enacted University Act comprising five undergraduate schools: Political Science and Economics, Law, Literature, Commerce, and Science and Engineering; Department of Commerce added as a professional training division. First Higher School (3-year course) newly launched.
- 1922** Death of Shigenobu Okuma, founder of the University.
- 1925** New University Library and Student Hall completed.
- 1927** Okuma Auditorium completed.
- 1928** Tsubouchi Memorial Theatre Museum completed.
- 1939** Coeducation introduced.
- 1940** Science and Engineering Research Laboratory established. Institute of Social Sciences established.
- 1945** One third of the campus destroyed by air-raids. Reconstruction and renovation started.
- 1949** Four-year college curricula established, with eleven schools, in accordance with the new education law.
- 1951** Graduate Schools (master's degree programs) under the new educational program established, with six schools.
- 1956** Waseda has turned out many politicians including several prime ministers since Tanzan Ishibashi becomes the first Waseda alumnus to be elected P.M.
- 1957** Together with Tanzan Ishibashi, Indian Prime Minister Jawaharlal Nehru is the first recipient of an honorary doctorate from Waseda.
- 1962** Institute of Language Teaching established. Robert Kennedy attends a student debate in the Okuma Auditorium.
- 1963** International Division established.
- 1966** School of Social Sciences established.
- 1974** Archaeological excavation of the Malkata site
- 1981** Extension Center established.
- 1982** Waseda Honjo Senior High School started as an affiliated school. First centennial anniversary of the founding celebrated.
- 1987** School of Human Sciences established.
- 1991** Center for Scholarly Information established.
- 1993** Bill Clinton gives a lecture at the Okuma Auditorium.
- 1995** Nelson Mandela is awarded an honorary doctorate and speaks passionately about democracy and peace in his recipient's address.
- 1998** Aizu Museum founded. In the first official visit to Japan by a Chinese head of state, President Jiang Zemin gives a lecture at the Okuma Auditorium.
- 2000** Open Education Center established.
- 2002** Hirayama Ikuo Memorial Volunteer Center established. Gloria Macapagal-Arroyo becomes the third Philippines President to receive an honorary doctorate.
- 2003** School of Sport Sciences established.
- 2004** School of International Liberal Studies established. Department of Global Political Economy established within the Faculty of Political Science and Economics. President of Academia Sinica and Nobel Prize Laureate in chemistry, Yuan Tseh Lee receives an honorary doctorate.
- 2005** Chairman and Chief Software Architect of Microsoft Corp. William Henry "Bill" Gates III receives an honorary doctorate.
- 2006** Wangari Muta Maathai, the Nobel laureate for Peace receives an honorary doctorate.
- 2007** Schools of Letters, Arts and Sciences I and II were reorganized into School of Culture, Media and Society and School of Humanities and Social Sciences. School of Science and Engineering was reorganized into School of Fundamental Science and Engineering, School of Creative Science and Engineering, and School of Advanced Science and Engineering. 125th anniversary. Henry A. Kissinger receives an honorary doctorate.
- 2008** National Chairman of China Hu Jintao visits Waseda University for speech on future-oriented amity to next term's Japanese and Chinese youth. US-Japan Research Institute (USJI) established.
- 2009** Special lecture by Kim Young-Sam, former President of the Republic of Korea. George W. Bush, 43rd President of the United States of America, gives a special talk.
- 2010** Secretary-General of the United Nations Ban Ki-moon visits Waseda University for speech on "Peace and Disarmament" and dialogue with students.
- 2011** Office for Aiding Reconstruction from the Great East Japan Earthquake established.
- 2012** Formulation of Waseda Vision 150
- 2014** Establishment of Department of Communications and Computer Engineering under the School of Fundamental Science and Engineering
- 2018** Opening of the Waseda University *History for Tomorrow* Museum



## 1882 » Okuma Shigenobu founded Tokyo Senmon Gakko (College)

The founding and opening ceremony of Tokyo Senmon Gakko (College) was held on October 21. At the ceremony, the Principal, Hidemaro Okuma, recited a text on the founding of the school, Azusa Ono delivered an address, and a declaration was made on the spirit of "Independence of Learning." The departments of political science, law, physical science, and English were established, and 80 students were admitted as the first batch of students.



## The "Group of Four" who contributed to the development of Waseda University

The "Group of Four" refers to the four individuals who participated in the founding and management of Waseda University, and contributed to its development. Sanae Takada served as the first Principal and third President of the institution, and poured his efforts into raising the institution to the rank of university as well as establishing the school of science and engineering. Tameyuki Amano was the Director of the School of Commerce when it was first opened, and soon became the second Principal of the University. Shoyo Tsubouchi built the foundations for the present-day Department of Literature. Kenichi Ichijima worked hard to realize the economic independence of the university, and also contributed to the expansion of the library.



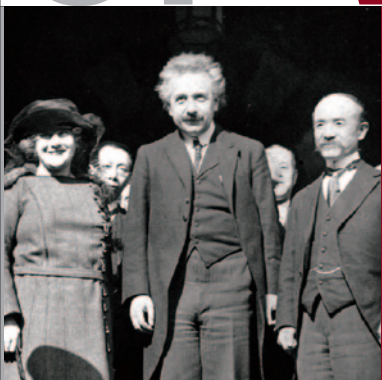
## 1903 »

### Start of the Waseda-Keio baseball match (Sokeisen)

Along with the Cambridge-Oxford boat races and the Harvard-Yale football match, the Waseda-Keio baseball match (Sokeisen) is named among the three major university sporting events in the world. A tradition that can be traced back to 1903, its appeal lies in the baseball teams of the two universities battling to preserve the honor of their alma mater, as well as the grand scale of support offered from the stands.



# of WASEDA



## 《 1922

### Visit by physicist Albert Einstein to Waseda University

On November 29, 1922, Professor Einstein visited Waseda University during his visit to Japan, and held a meeting with President Masasada Shiozawa who had once studied at Berlin University. At the welcome ceremony held in the central courtyard, more than 10,000 students and faculty welcomed Professor and Mrs. Einstein with enthusiastic applause. When they left, they were sent off with a chorus of the university's anthem.



## 《 1974

### Archaeological excavation of the Malkata site

In 1966, an archaeological team from Waseda University became the first Japanese people to launch an archaeological excavation mission at an ancient Egyptian site. In 1974, the team became the first in the history of archaeological excavations in Egypt to discover the "colored staircase" in Malkata. The team earned credibility with Egypt's Ministry of Antiquities, and was rated highly in Japan.

## 1928 《

### Japan's first gold medalist

At the Amsterdam Olympics, Mikio Oda from Waseda University's track and field club became the first Japanese to win a gold medal for the triple jump. The same track and field team attended a sports meet for international students held in Paris on their way back to Japan from the Olympics, opening the path to participation in the Universiade later on.



## 《 1940

### "Visas for life" from diplomat Chiune Sugihara

In 1918, Chiune Sugihara gained admission to the Department of English at Waseda University's Higher Normal School (the School of Education today). In 1940, Sugihara, who was then working at the Japanese Consulate in Lithuania, issued visas against orders from the Ministry of Foreign Affairs, thus saving about 6,000 Jews. His humanitarian act is highly appraised by the international community.



## 1993 《

### Visit to Waseda University by then U.S. President Bill Clinton

In 1993, Bill Clinton, then President of the United States of America, visited Waseda University. Thereafter, the university continued to welcome visits by many distinguished guests from around the world, including Hu Jintao, former President of the People's Republic of China in 2008, and former UN Secretary-General Ban Ki-moon in 2010.

## 1956 《

### The beginnings of the Ishibashi Cabinet, first alumnus of Waseda to become Prime Minister

In December 1956, Tanzan Ishibashi, former student of Waseda, was elected as President of the Liberal Democratic Party. In the nomination for the head of the government in both the upper and lower houses of the Diet held during the same month, Ishibashi defeated Mosaburo Suzuki, Chairman of the Socialist Party and also alumnus of Waseda, to become the Prime Minister of Japan. These are the origins of our first Prime Minister from Waseda.



## 2007 《

### 125th founding anniversary— Toward the "second establishment" of the university

Waseda University has continued to move forward toward its three goals of tackling the challenge of innovative advanced research, realizing lifelong learning across the institution, and fostering global citizens. At the ceremony held on October 21, 2007 to commemorate its 125th anniversary, 15th President Katsuhiko Shirai delivered the "Second Century Declaration of Waseda."



## 《 1962

### Robert Kennedy attends student debate

In the midst of the protest against the Japan-U.S. Security Treaty in 1962, then U.S. Attorney General Robert Kennedy and his wife attended a student debate at the Okuma Auditorium. The couple was touched by the joint singing of the university's anthem by groups that were both for and against the Treaty. When they visited Japan again, they remembered the anthem well and sang it together with the students.



## 《 2012

### Formulation of Waseda Vision 150

Waseda Vision 150 was formulated in 2012 with a view to the 150th anniversary of the university's founding in 1932. Waseda University has dramatically improved the quality of education and research, and will continue to contribute to the world as a leading university of Asia.



# About WAS

## 2,000 subjects

**Wide range of subject groups that students can take up regardless of their faculty or academic year**

With the provision of diverse opportunities of learning that are available to all students regardless of their faculty or academic year, students are able to create their own unique "knowledge systems." The learning choices that students have extend infinitely through university-wide open subjects that all students can take up freely. By combining these subjects with the courses in their own departments, students can create a complete curriculum of their own.



## 27 languages

**Opportunity to learn various languages**

Students can study a wide range of language subjects while gaining exposure to the history and culture of that language group. This includes languages that students rarely have the opportunity to learn in Japan, such as Swahili and Mongolian.



**Percentage of classes with less than 50 students**

Waseda University classes with a large number of students and the majority of lectures held in large classrooms are now a matter of the past. Classes attended by less than 20 students now make up 55% of all classes, with students and faculty members engaging in two-way communication.

FROM THE WORLD

## 7,476

**From 120 countries and regions to Waseda**

The sight of international students and Japanese students interacting in various languages, including English, is an everyday scene on the campus, giving students a taste and experience of what it is like to study abroad.

**people**

2018 Academic Year

TO THE WORLD

## 84% 4,439

**A learning space from Waseda to the world**

Students of Waseda University have an extremely outward-looking perspective. Experiencing different cultures first-hand during their school days can guide students to take a confident step toward their future.

**people**

2018 Academic Year



# EDA

# 5.8 million volumes



## Waseda University Library— Boasting one of the largest collections among private universities in Japan as well as more than 20 related facilities

The total number of volumes in the collections of the library's related facilities is on a scale that is inconceivable for a university. From books that can be used as reference for regular classes to materials with historical value, the library holds a diverse collection of academic materials. With the recent development of electronic materials, the number of e-books available at Waseda University reaches more than 533,000 titles, while the number of electronic journals reaches more than 115,000 titles. A large number of databases is also available.



Taking advantage of large-scale research and education programs implemented by government ministries and agencies,  
to transform into **WASEDA** that shines on  
the world stage.

The following are examples of programs that Waseda University is promoting (or has promoted in the past).

### MEXT / Japan Science and Technology Agency (JST) / Japan Society for the Promotion of Science (JSPS) programs

Program to Establish Open Innovation Organizations / WISE Program (Doctoral Program for World-leading Innovative & Smart Education) (Only private university selected during the first year of open bidding (FY2018)) / Program for Promoting the Enhancement of Research Universities / Top Global University Project, Type A (Top Type) / Program for Leading Graduate Schools / Exploration and Development of Global Entrepreneurship for NEXT generation (EDGE-NEXT) / Education Network for Practical Information Technologies (enPIT) / Doctoral program for Data-Related Innovation Expert (D-DRIVE) / Project for Sharing of Advanced Research Infrastructure / Joint Usage/Research Center program / The Strategic Research Centers Development (Super COE) / Grants-in-Aid for Scientific Research / Core-to-Core Program (Advanced Research Networks)

### METI / New Energy and Industrial Technology Development Organization (NEDO) program

Semiconductor Fabrication Chip Project / Project for Industrial Technology Research and Development Facilities / R&D Project on Technology to Deal with Power System Output Fluctuations / Strategic Core Technology Advancement Program (Supporting Industry Program)

### Cabinet Office

Cross-Ministerial Strategic Innovation Promotion Program (SIP) / Impulsing Paradigm Change through Disruptive Technologies Program (ImPACT)

### MHLW / Japan Agency for Medical Research and Development (AMED)

Health and Labor Science Research Grant / Advanced Research & Development Programs for Medical Innovation (AMED-CREST, PRIME, LEAP)

### Ministry of the Environment

Environment Research and Technology Development Fund

## Faculty and Students

Number of faculty members as of April 2018

[\*]: Number of Students to be admitted as of May 2018

\*includes professional degree school

<b>Faculty of Political Science and Economics</b>	<b>147</b>
School of Political Science and Economics	[3,600]
Graduate School of Political Science	[410]*
Graduate School of Economics	[320]

<b>Faculty of Law</b>	<b>150</b>
School of Law	[2,960]
Graduate School of Law	[280]
Waseda Law School	[600]

<b>Faculty of Letters, Arts and Sciences</b>	<b>221</b>
School of Culture, Media and Society	[3,440]
School of Humanities and Social Sciences	[2,640]
Graduate School of Letters, Arts and Sciences	[1,095]

<b>Faculty of Education and Integrated Arts and Sciences</b>	<b>163</b>
School of Education	[3,840]
Graduate School of Education	[447]*

<b>Faculty of Commerce</b>	<b>161</b>
School of Commerce	[3,600]
Graduate School of Commerce	[280]
Graduate School of Accountancy	[200]
Waseda Business School	[510]

<b>Faculty of Science and Engineering</b>	<b>604</b>
School of Fundamental Science and Engineering	[2,380]
School of Creative Science and Engineering	[2,380]
School of Advanced Science and Engineering	[2,160]
Graduate School of Fundamental Science and Engineering	[1,260]
Graduate School of Creative Science and Engineering	[1,207]
Graduate School of Advanced Science and Engineering	[1,430]
Graduate School of Environment and Energy Engineering	[121]
Graduate School of Information, Production and Systems	[460]

<b>Faculty of Social Sciences</b>	<b>82</b>
School of Social Sciences	[2,520]
Graduate School of Social Sciences	[192]

<b>Faculty of Human Sciences</b>	<b>117</b>
School of Human Sciences	[2,240]
Graduate School of Human Sciences	[375]

<b>Faculty of Sport Sciences</b>	<b>81</b>
School of Sport Sciences	[1,600]
Graduate School of Sport Sciences	[370]

<b>Faculty of International Research and Education</b>	<b>123</b>
School of International Liberal Studies	[2,400]
Graduate School of International Culture and Communication Studies	[130]
Graduate School of Asia-Pacific Studies	[330]
Graduate School of Japanese Applied Linguistics	[145]



# Research WA

## WASEDA's Research Cap

Waseda University promotes original research that innovates the future, while at the same time applying its wealth of knowledge to the diverse fields that are its strength as a comprehensive university. In the latest world university ranking (Quacquarelli Symonds ranking), Waseda University ranked among the top 100 in the world in 11 research fields, demonstrating that Waseda University's research capabilities are highly regarded around the world.

#1  
Top among private universities in Japan

#1  
Top among private universities in Japan

QS Graduate Employability Rankings 2019

Ranked No.1 among private universities in Japan for the second year running in the ranking that indicates how successful university's graduates are. Ranked No.27 worldwide.

93 countries and regions

835 universities and academic institutions

Foremost overseas network among universities in Japan

#1  
Top among private universities in Japan

Ranking for the number of adopted KAKENHI (Grants-in-Aid for Scientific Research)

Ranked fourth among all research institutions in Japan (first among private universities)



# SEDA

## abilities

## Collaborative research with foreign enterprises

Ministry of Education, Culture, Sports, Science and Technology (MEXT)  
FY2016 Survey on the Implementation Status of Industry-Academia cooperation in Universities

Ranked among  
top **100** in the world  
in **11** subjects

## World University Rankings

Waseda University was highly rated in the QS World University Rankings 2019 (U.K.), ranked by research subject. Waseda also saw an improvement in the number of subjects ranked in global top 50.

### projects by field

For the Grants-in-Aid for Scientific Research (KAKENHI) offered by MEXT in FY2018, Waseda University ranked first in four out of 65 research fields (Language and Literature, Law, Economics and Management, and Mathematical Analysis and Applied Mathematics).

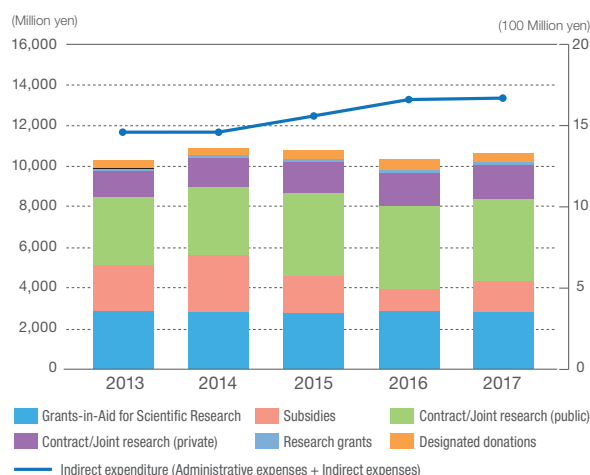
### Changes in amount of research funds received

	2013	2014	2015	2016	2017
Grants-in-Aid for Scientific Research	2,844	2,794	2,773	2,867	2,800
Subsidies	2,290	2,838	1,809	1,118	1,532
Contract/Joint research (public)	3,366	3,375	4,128	4,070	4,078
Contract/Joint research (private)	1,241	1,408	1,511	1,619	1,677
Research grants *1	150	133	134	118	138
Designated donations *2	406	345	451	585	424
Total	10,297	10,893	10,806	10,378	10,648

	2013	2014	2015	2016	2017
Indirect expenditure (Administrative expenses + Indirect expenses)	14.6	14.6	15.6	16.6	16.7

\*1. Research grants: Research costs received from private-sector foundations and others for the purpose of developing academic research.

\*2. Designated donations: Donations granted to support research activities at Waseda University.



### Projects adopted for Grants-in-Aid for Scientific Research

#### Number of projects adopted & national ranking

	2014	2015	2016	2017	2018
Number of projects adopted	929	946	982	964	950
National ranking for number of projects adopted	12	12	12	12	12

### Number of venture businesses established - Waseda ranks 1st among private universities for the fourth year running!

In the FY2017 Survey on University-Oriented Venture Businesses conducted by the Ministry of Economy, Trade and Industry (METI), Waseda University ranked No.1 among private universities in Japan for the number of university-oriented venture businesses. This marked the fourth consecutive year that it has placed first since FY2014. Waseda University has established an Incubation Promotion Office that nurtures venture businesses utilizing the research and academic output of students and faculties, and provides support for the creation of innovation.

#### Representative alumni who are successful entrepreneurs

- Masaru Ibuka, founder of Sony
- Noritsugu Hayakawa, founder of Tokyo Metro
- Isao Okawa, founder of CSK (now SEGA Holdings)
- Ataru Kobayashi, first President of the Japan Development Bank (now Development Bank of Japan)
- Tadashi Yanai, founder of Fast Retailing Co., Ltd. (UNIQLO)
- Taichi Murakami, founder of Livesense Inc.
- Shintaro Yamada, founder of Mercari, Inc.
- Kazuhiko Nishi, founder of ASCII Research Laboratories, Inc.



## Initiatives to Promote Industry-Government-Academia Collaboration

CASE

# 01

**Working together with the aim of realizing an open innovation ecosystem through industry-academia collaboration**

**Research Organization for Open Innovation Strategy**

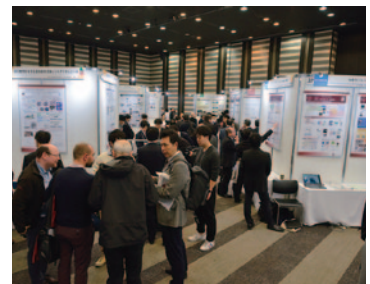
Waseda University has been selected for MEXT's FY2018 Open Innovation Organization Development Project. As an open innovation institution, Waseda University has established a center for the implementation of research in society, the Research Organization for Open Innovation Strategy. Experts have been invited from corporations, while researchers of Waseda University who will be the leaders of future generation form the core of this organization. The organization promotes research and development projects (Research Factory) that involve conducting joint research with corporations through various management models. In addition, by moving forward on initiatives implemented in collaboration with the university's humanities and social science faculty team (Creative Partners), and a showroom plan that will make use of the new Building No.120 scheduled to be completed in April 2020, the organization is raising the previous phases of industry-academia collaboration, and proposing and implementing joint research at a level that brings its recognition from corporations as a business partner. It will strive to create a university that can play a leadership role in creating social value, which is the third role of universities after education and research.

### Open Innovation Forum held

The Waseda Open Innovation Forum 2019 (WOI'19) (Organized with the support of the Japan Business Federation Keidanren) was held on Tuesday, March 5, 2019 at Bellesalle Shiodome (Chuo-ku, Tokyo). This Forum was held with the aim of presenting the vision for industry-academia collaboration, as well as providing a space for holding lectures on advanced research for introducing case studies on technology seeds and industry-academia collaboration, technological exhibitions and demonstrations, and business matching with industry partners.



▲ A successful seminar that was packed throughout the day



▲ Booths presented by about 70 research groups



Amidst intensifying competition in the world, overcoming the “valley of death” that lies between industries and academia and realizing an ecosystem of industry–academia collaboration as soon as possible, is a pressing issue when it comes to enhancing Japan’s competitiveness.

Waseda University aims to realize a sustainable ecosystem of industry–academia collaboration, and is engaged in efforts to build such an ecosystem. In this ecosystem, highly-original research output is created, and this intellectual property then contributes to the creation of high value-added products through joint research with industries, transfer of technology, and establishment of venture businesses; a part of the industrial profits generated in that process is reinvested toward next-generation research and development at the university. Furthermore, industry–academia collaborative research requires the active participation of graduate students, particularly those in the doctoral courses who will be the leaders of the future generation. In view of that, Waseda University nurtures human resources with the ability to tackle difficult problems that reflect social needs, and to disseminate research results to the world.

## An ecosystem of social implementation research pioneered by the Waseda Research Factory

Third role of a university after education and research

**Creation of social value**

Joint research as a business partner



New research building (with an adjoining showroom) that takes advantage of the good location in Shinjuku (To be completed in April 2020)

Independent university — Practical application of knowledge

**Self-sustaining research**

Joint research as a business partner

### Initiatives under this program

Creating spaces that facilitate open and diverse networking for research seeds and self-sustaining needs

Social implementation of a higher order  
Leveraging on specialized knowledge in the field of humanities and social sciences and thinking comprehensively from various angles, with a view to engaging in joint research

Through support from Creative Managers (CM), strengthening the capacity to make proposals to corporations, including counteroffers, and strengthening intellectual property strategies and legal management

Formation of joint research clusters (Waseda Research Factory) by young faculty members who represent their respective fields

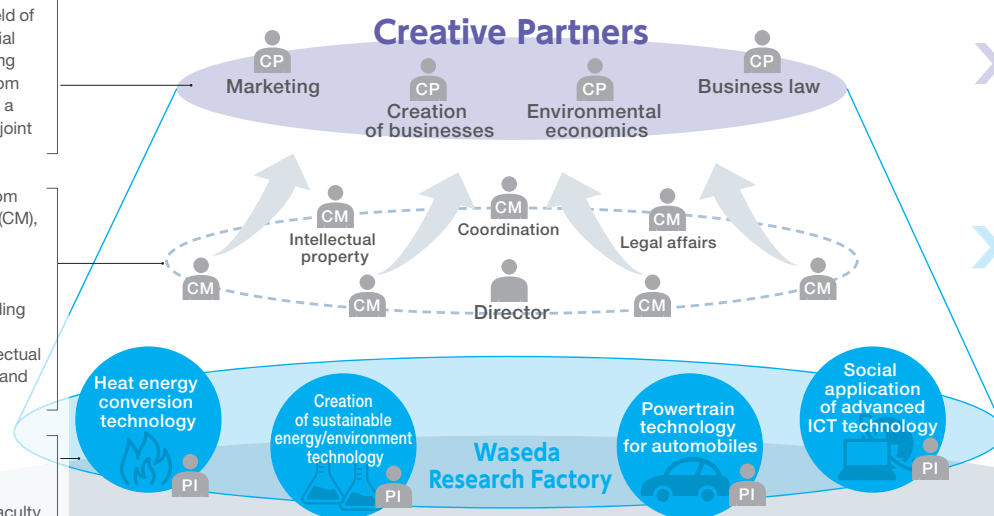
### Sustainable ecosystem

Independent research support system through the circulation of overheads

Attracting new practical knowledge and needs intermittently, and increasing the number of business partners

Building a model for creating innovation sustainably by verifying the joint research situation

Putting into practice different forms of management corresponding to the faculty member and field, including consortium, group, and emergent fields, spreading knowhow across the university, and realizing an increase in the number of faculty oriented on social implementation



## Research Organization for Open Innovation Strategy



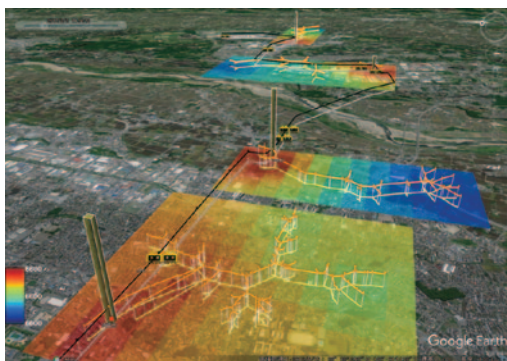
## CASE

# 02

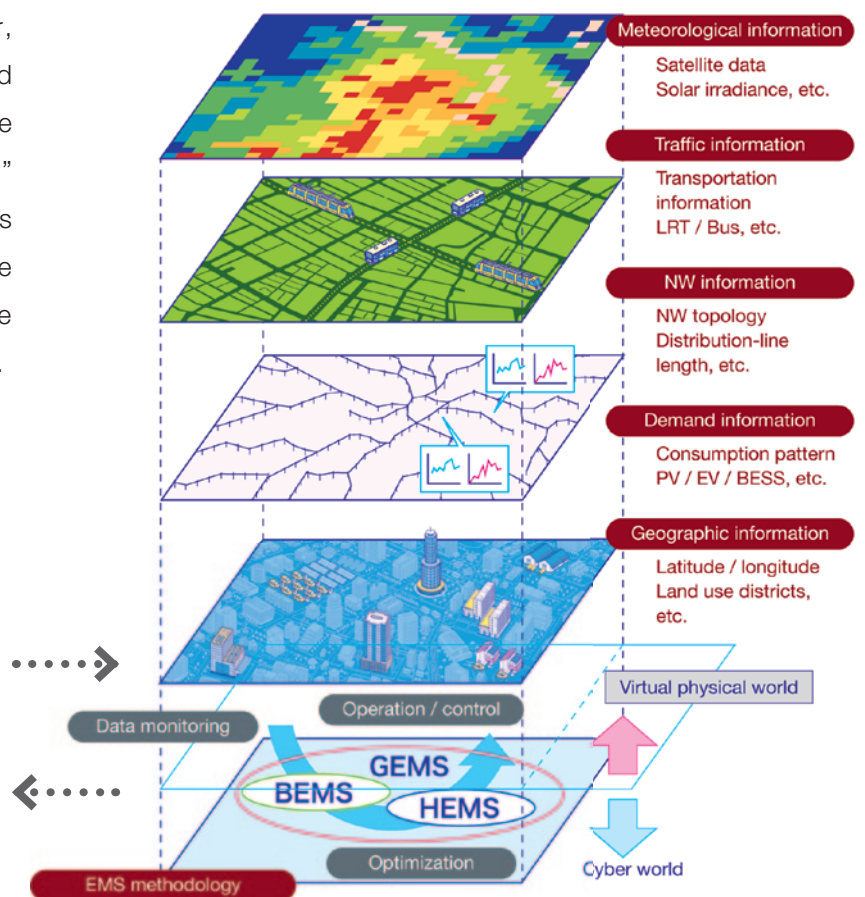
## From “Smart Society” to “Super-Smart Society” — An affluent future created through industry-academia collaboration in innovation

### Advanced Collaborative Research Organization for Smart Society

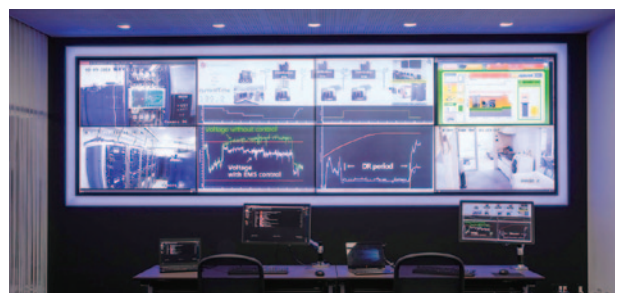
In recent years, the use of ICT has expanded across all aspects of our lives, stimulating the fusion of everything and nurturing the soil that feeds new and unprecedented values and services. Waseda University captures this situation as a sign of the advent of a “Smart Society,” and had established the Advanced Collaborative Research Organization for Smart Society (ACROSS) as early as 2014, and continued with activities since then. This Research Organization perceives the support of basic scenarios in life such as housing, food, and labor, in a comfortable, healthy, secure and environmentally-friendly manner, as the universal essence of a “Smart Society.” Taking “innovation through integration” as its keywords, it aims to constantly drive the evolution of that concept in anticipation of the changing times and technological innovation.



▲ SMART CITY



▲ Next-generation advanced grid experimental model system  
- ANSWER (Active Network System with Energy Resources)



▲ Integrated EMS Platform



## Executive Members of the Promotion Association for Smart Society Technology (PASS-T) (as of March 2019)



Designing the vision for the spread, deployment, and utilization of technology based on global standards.

- Asahi Kasei Homes Corporation
- CHUBU Electric Power Co., Inc.
- East Japan Railway Company
- Hokkaido Electric Power Co., Inc.
- Hokuriku Electric Power Company
- JXTG Nippon Oil & Energy Corporation
- KDDI Corporation
- Kyushu Electric Power Co., Inc.
- Mitsubishi Corporation
- Mitsui Fudosan Co., Ltd.
- Nomura Real Estate Holdings, Inc.
- NTT Group
- OBAYASHI CORPORATION
- Osaka Gas Co., Ltd.
- SEKISUI CHEMICAL CO., LTD.
- SHOWA SHELL SEKIYU K. K.
- Sumitomo Forestry Co., Ltd.
- TAISEI CORPORATION
- Tohoku Electric Power Co., Inc.
- The Kansai Electric Power Co., Inc.
- Tokyo Electric Power Company Holdings, Inc.
- TOKYO GAS Co., Ltd.
- West Japan Railway Company

## Members of the Study Group for Smart Society Technology (SGSS-T) (as of March 2019)



Through the development of technology that realizes the vision built by the Promotion Association for Smart Society Technology, the Study Group for Smart Society Technology aims to achieve the implementation of "smart technologies" in society.

- ABB Bailey Japan Limited
- Ad-Sol Nissin Corporation
- Azbil Corporation
- DAIHEN Corporation
- DAIKIN INDUSTRIES, LTD.
- DENSO CORPORATION
- FUJITSU LIMITED
- Hitachi, Ltd.
- Honda R&D Co., Ltd.
- ITOCHU Techno-Solutions Corporation
- Johnson Controls, K.K.
- KYOCERA Corporation
- MEIDENSHA CORPORATION
- Mitsubishi Electric Corporation
- Mitsubishi Motors Corporation
- Murata Manufacturing Co., Ltd.
- NEC Corporation
- NF Corporation
- NGK INSULATORS, LTD.
- NISSAN MOTOR CO., LTD.
- OMRON Corporation
- OSAKI ELECTRIC CO., LTD.
- Panasonic Corporation
- SANIX INCORPORATED
- Sumitomo Electric Industries, Ltd.
- TABUCHI ELECTRIC CO., LTD.
- TAKAOKA TOKO CO., LTD.
- TOSHIBA CORPORATION
- Yokogawa Electric Corporation



## 10 research institutes of Waseda University

Mobilizing and integrating research and knowledge in all fields of study

Research Institute for Advanced Network Technology, Research Institute for Building Environmental Design, Research Institute of Electric-driven Vehicles, Research Institute for Photovoltaic Power Generation System, Research Institute for Power and Energy Systems, The Smart Life Science Institute, Institute for Economic Analysis of Next-generation Science and Technology, Research Institute for Advanced Transport Systems, Railway System Technical Research Institute, Marketing International Institute.

## Advanced Collaborative Research Organization for Smart Society

R&D project  
Formulation/Operation

Fusion/Collaboration of technologies  
(International standardization  
of interface)

Support for the deployment  
and commercialization of  
R&D technologies

Seminars/Personnel exchanges



**Taking the lead in building common core technologies for a Smart Society**



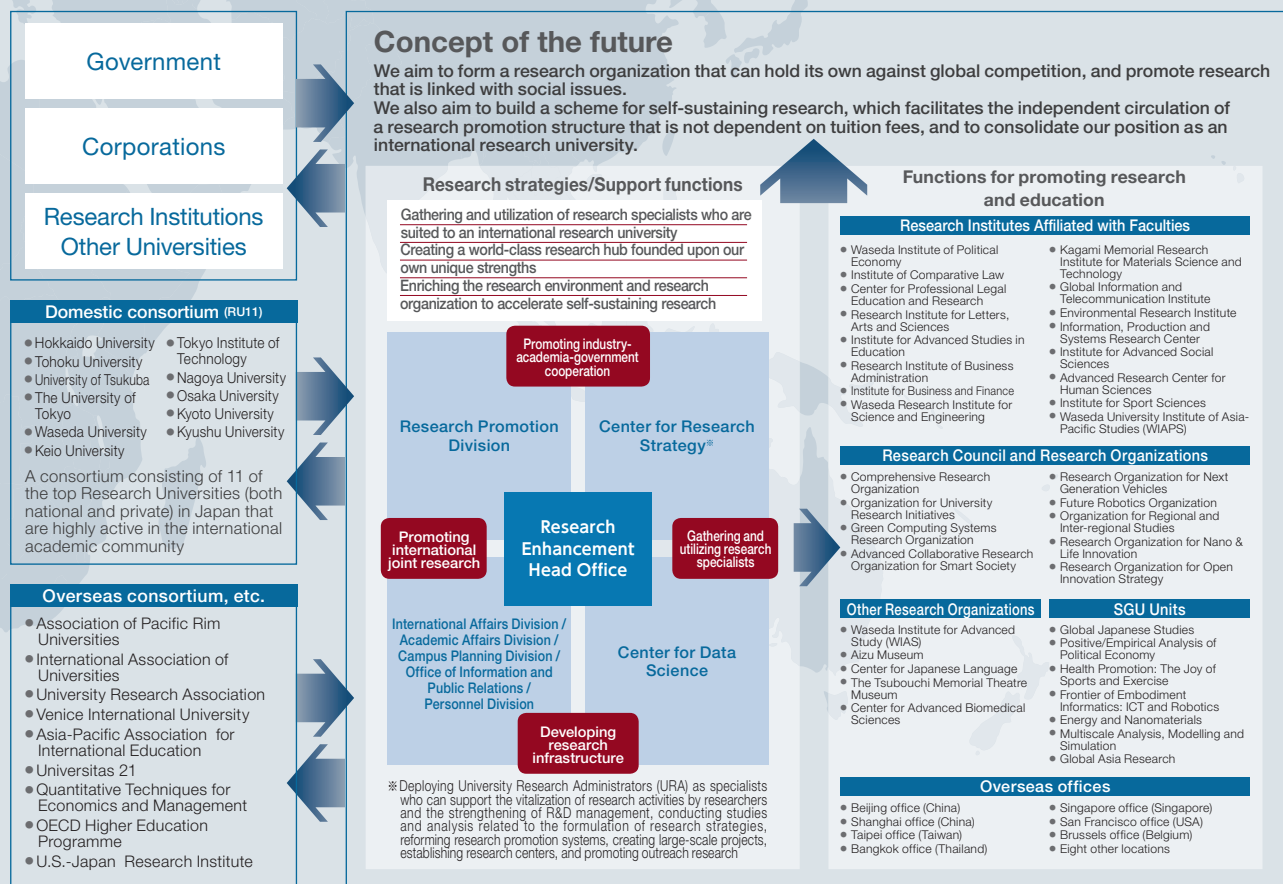
# Research WASE

## The **WASEDA** research system

### Establishment of the Research Enhancement Head Office

Waseda University has been selected by the Ministry of Education, Culture, Sports, Science and Technology's "Program for Promoting the Enhancement of Research Universities" as a university with prospects of achieving significant global results by promoting global-class excellent research and making efforts to improve research operations and environments to international standards. It views this program as a focused and potent driver of Waseda Vision 150 initiatives. Waseda University has established a Research Enhancement Head Office, headed by the President of the University, as a body for implementing initiatives and promoting projects.

### Research promotion and support system to realize Research WASEDA



#### ▶ Research Council and Research Organizations

Waseda University has established the Research Council to stimulate interaction among researchers beyond the confines of faculties and provide support required by research activities and facilitate planning and execution of strategic research initiatives. The Research Council sets up Research Organizations that pursue promotion of cross-disciplinary research and international collaborative research aside from existing laboratories and centers.

#### ▶ SGU (Super Global University) Units

In 2014, "Waseda Goes Global", a plan to build a worldwide academic network that is open, dynamic and diverse, was adopted as a top level initiative of the Top Global University Project by the Ministry of Education, Culture, Sports, Science and Technology. With the aim to open the University up to the world and dramatically improve the quality of education and research in a time where international mobility of the minds is dynamic, we have prioritized funding in seven internationally-renowned model units (Global Japanese Studies; Positive/Empirical Analysis of Political Economy; Health Promotion: The Joy of Sports and Exercise; Frontier of Embodiment Informatics: ICT and Robotics; Energy and Nanomaterials; Multiscale Analysis, Modelling and Simulation; and Global Asia Research). We are moving forward on the initiative through an all-university effort.



## Industry-Academia-Government Collaboration

Waseda University believes it is the mission of universities to contribute to the further development of industry and the realization of a sustainable society, by creating innovations through industry-academia-government collaboration seeing the world as its stage.

Established in 1999, the Waseda University Research Collaboration and Promotion Center manages Waseda University intellectual property and research contracts regarding industry-academia-government collaboration and promotes the development of practical applications of the intellectual property through technology transfers.

In addition to building a solid foundation for industry-academia-government collaboration at Waseda, the Research Collaboration and Promotion Center will further seek the "practical utilization of knowledge," which is key to Waseda's mission.

The construction of a new research and development building on the Waseda Campus is currently underway, with the aim of accelerating the expansion of large-scale industry-academia collaboration. This large-scale consortium hub, comprising six floors above ground and two basement floors, is scheduled to be completed in 2020.



### CONTACT

Research Collaboration and Promotion Center (Approved TLO)

**E-mail** [contact-tlo@list.waseda.jp](mailto:contact-tlo@list.waseda.jp)

**URL** <https://www.waseda.jp/inst/research/tlo>

## Promotion of international joint research

Waseda University is exploring ways to strengthen collaboration with research institutions overseas. As a part of its initiatives, it has implemented the "International Research Project Creation Support Programme" (hereafter, "Research Cluster Programme"), which aims to create new organizational international joint research projects not from the position of individual researchers, but as a university.

In the Americas, it is moving forward on discussions with the University of California, San Diego; in Europe, it has agreed on a strategic partnership for joint research with the University of Birmingham in the U.K. in 2016. Under the Research Cluster Programme with the University of Birmingham, it is now providing support for joint research in 15 disciplines (Shakespearean studies, linguistics, robotics, atmospheric environmental science, international labor movement, etc.). On November 26 and 27, 2018, "University of Birmingham Day" was held at Waseda University for the presentation of the results of joint research and to set the stage for the vitalization of exchanges in the future. In addition to a Japan-UK international symposium titled "Adapting Shakespeare for the Stage Today," researchers engaged in discussions and deepened collaboration through the various workshops held.

Going forward, the Brussels Office, opened in 2016, will be utilized to strengthen research exchanges in disciplines spanning humanities and social sciences to science and engineering.



### CONTACT

International Research Promotion Initiative

**E-mail** [irp-staff@list.waseda.jp](mailto:irp-staff@list.waseda.jp)

## Research and Education in Data Science

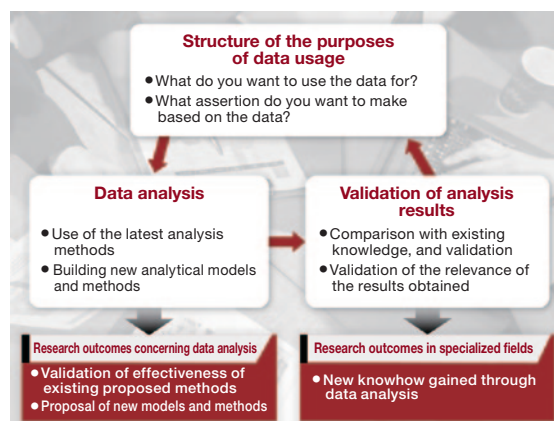
Waseda University founded the Center for Data Science in 2017. The center provides a platform that integrates the latest developments in data science with the knowledge built up across both science & engineering and the humanities by utilizing the full strength of our comprehensive private university. We aim to integrate and create new knowledge, develop human resources who can contribute to the resolution of complex, global social issues, and enhance the overall research capabilities of Waseda University. The Center will keep forming a large-scale network with both domestic and overseas universities and enterprises, and strive to disseminate practical education and state-of-the-art research through integration of data science and academic expertise as a global center for advanced research and education models.

### CONTACT

Center for Data Science

**E-mail** [cgs-info@list.waseda.jp](mailto:cds-info@list.waseda.jp)

**URL** <https://www.waseda.jp/inst/cds/>



# Next-generation WASEDA Research Resources

— Next-generation Core Researchers: Key Researchers —

## Who are the key researchers of the next generation?

Waseda University implements the “next-generation key researcher training program” and selects researchers with potential to lead Waseda’s research capabilities in the next generation. Waseda provides organizational support, such as concentrated research assistance and a suitable environment. This program is one of the initiatives for realizing “improvement of a group presence” under the theme of organization of research of the Ministry of Education, Culture, Sports, Science and Technology’s “Program for Promoting the Enhancement of Research Universities.” It also seeks to promote team-based research led by young and mid-level researchers in accordance with the core strategy item “promote innovative research and strengthen international dissemination capabilities” in Waseda Vision 150. Waseda has selected 14 researchers thus far who are promoting global top-level research.



FY2019- Key Researchers [Close up ● P.22](#)

Ogata Deep Cognitive System Project

### Development of Humanoid Robots for Multiple tasks by Deep Learning

Deep learning technology is applied to robot systems with the concept of “developmental cognitive robotics”. We create a future of human-robots collaboration.

Tetsuya Ogata received B.S, M.S and D.E degree in mechanical engineering from Waseda University in 1993, 1995, 2000 respectively. He was a Research Scientist at the RIKEN Brain Science Institute, Lecturer and Associate Professor with the Graduate School of Informatics, Kyoto University, and Researcher under the Japan Science and Technology Agency’s PRESTO (Precursory Research for Embryonic Science and Technology) program. He took up his present position in 2012. From 2017, he is a Joint-appointed Fellow with the Artificial Intelligence Research Center, National Institute of Advanced Industrial Science and Technology, Tokyo.

URL <http://ogata-lab.jp/ja/>

**Tetsuya Ogata**

Professor,  
Faculty of Science and Engineering



FY2019- Key Researchers [Close up ● P.23](#)

Takizawa Fluid-Structure Interaction Project

### Developing Computational Methods Applicable to a Wide Range of Mechanical Engineering Problems

Focuses on fluid-structure interaction, in which fluids and structures produce mutually-dependent complex physical phenomena, with applications ranging from biomechanics, such as heart physiology, to a diverse set of industrial applications.

After graduating from the Department of Mechano-Aerospace Engineering at the Tokyo Institute of Technology in 2001, Takizawa continued to obtain his doctoral (Science) degree at the same university in 2005, in the Interdisciplinary Graduate School of Science and Engineering. After research positions at the National Maritime Research Institute and Rice University in Houston, he worked as an Associate Professor in 2001 at the Waseda Institute for Advanced Study (WIAS). He also worked as an Associate Professor in the Faculty of Science and Engineering at Waseda University before reaching his current position in 2018.

URL <http://www.jp.tafsm.org/>

**Kenji Takizawa**

Professor,  
Faculty of Science and Engineering



FY2019- Key Researchers **Close up ● P.24**

Horizontal and Integrative Network Of Public Opinion and Voting bEhaviour Research (HINO-POPVOTER)

## Research on the Formation of Public Opinion and Voting Behavior based on Social Media Analyses

**The research theme is electoral analysis through cross-national comparison. Currently studying the role that social media trends play in molding public opinion and voting behavior, based on case studies of various countries.**

After graduating from the School of Political Science and Economics at Waseda University in 1998, he completed the Master's program at the Graduate School of Political Science, also at Waseda University, in 2000. In 2006, he completed the doctoral program in the Department of Government at the University of Essex and received his Ph.D (in Government). He has carried out research at the Instituut voor Sociaal en Politiek Opinieonderzoek (ISPO) in Belgium, among other academic appointments. In 2010, he was appointed Associate Professor at the Faculty of Political Science and Economics, Waseda University, and took up his current position in 2014.

URL <https://goo.gl/7cK8oJ>

**Airo Hino**

Professor,  
Faculty of Political Science and Economics

FY2018- Key Researchers **Close up ● P.21**

Arimura Environmental and Energy Policy Project

## Empirical Study of the Effects and Challenges of Environmental and Energy Policies

**Empirical analysis of the effects and challenges of price policies and non-price policies for promoting environmental conservation. Recommends environmental and energy policies based on evidence.**

Graduated from the Department of Arts and Sciences, College of Arts and Sciences of the University of Tokyo in 1992, completed the Master's Program in Environmental Sciences at the Graduate School of Life and Environmental Sciences of the University of Tsukuba in 1994, and completed the University of Minnesota Graduate School (U.S.) with a Ph.D. in Economics in 2000. Previous appointments include Visiting Associate Professor as Abe Fellow at George Mason University (U.S.) and Professor at the Department of Economics, Sophia University, before taking up the present position from April 2012.

URL <http://www.f.waseda.jp/arimura/>

**Toshi H. Arimura**

Professor,  
Faculty of Political Science and Economics



## FY2017- Key Researchers

Liu-Farrer International Labor Migration Project

## Investigating the Mobilities of People in the Global Labor Market

**This project involves international collaborative research on cross-border movements of migrants with different skill levels. It aims to understand human mobilities in an age of globalization and contribute to policy making.**

Liu-Farrer obtained a BA in English from Fudan University (1993), MA and Ph.D. in Sociology from the University of Chicago (2007). She joined the Graduate School of Asia-Pacific Studies, Waseda University in 2009, and became Professor in 2014. Prior to her career at Waseda, she was an assistant professor at Ochanomizu University and visiting professor at the Institute for the Study of Global Issues, Hitotsubashi University. She received the Waseda Research Award in FY2014.

URL <https://www.waseda.jp/gsaps/about/faculty/liu-farrer-gracia/>

**Gracia Liu-Farrer**

Professor,  
Faculty of International Research & Education



**FY2017- Key Researchers**

Sekine Ionics Catalyst Project

## Building a New Reaction System Utilizing Surface Ionic Conduction

**This research seeks to develop an entirely new high-efficiency catalytic process, which does not rely on past catalyst reaction mechanisms, employing low-temperature surface ionic conduction and spin conduction.**

Completed a doctorate of engineering course and obtained a Ph.D. (Engineering) at the University of Tokyo Graduate School, School of Engineering, Department of Applied Chemistry in 1998. Working as a research associate at the University of Tokyo Graduate School, School of Engineering, Department of Applied Chemistry, as a research associate at Waseda University, Faculty of Science and Engineering, Department of Applied Chemistry, and as an associate professor of the Department of Applied Chemistry at Waseda University prior to his current position since 2012. Also serving as a JST fellow since 2011.

**URL** <http://www.f.waseda.jp/ysekine/>

**Yasushi Sekine**

Professor,  
Faculty of Science and Engineering



**FY2017- Key Researchers**

Togawa IoT Integrated System Project

## Taking on Technology Issues Aimed At Realizing an IoT World

**This research addresses issues related to design, security, and application needed to build an “IoT world” that connects all things to networks.**

Completed a Ph.D. (Electrical Engineering) at the Department of Electronics and Communication Engineering, Graduate School of Science and Engineering, Waseda University in 1997. Worked as a research associate at the Department of Electronics and Communication Engineering at Waseda University, an associate professor at the Department of Information and Media Sciences at the University of Kitakyushu, and an associate professor at the Department of Computer Science and Engineering at Waseda University prior to assuming his current position in 2009. His specialties are integrated circuit design and applied technology.

**URL** <http://www.togawa.cs.waseda.ac.jp/>

**Nozomu Togawa**

Professor,  
Faculty of Science and Engineering



**FY2016- Key Researchers**

Iriyama Frontier Management Research Project

## Theoretically and Empirically Analyzes Corporate and Non-Market Strategies

**This research covers corporate and non-market strategies and team creativity themes that have been attracting interest in international management in recent years. It hopes to raise awareness in society.**

Graduated with a masters in Economics from Keio University, worked for Mitsubishi Research Institute, and obtained a Ph.D. in Management at the University of Pittsburgh (US) in 2008. He served as an assistant professor at business school of State University of New York, Buffalo before assuming his current position in 2013.

**URL** <https://www.waseda.jp/fcom/wbs/other/1047>

**Akie Iriyama**

Professor,  
Faculty of Commerce





## FY2016- Key Researchers

Iwata Body/Mind Awakening RT Project

**New Initiatives in Human Assistive Robotics Technology**

**This research aims to establish foundation technology for robot technology that expands human capabilities and sensory and movement functionality and improve conditions facing seniors and people with disabilities and enhance QOL.**

Completed a Ph.D. (Mechanical Engineering) at Department of Mechanical Engineering, Graduate School of Science and Engineering, Waseda University in 2002. Served as a lecturer for the Graduate School of Science and Engineering at Waseda University, an Associate Professor at the Consolidated Research Institute for Advanced Science and Medical Care at Waseda University, and an Associate Professor at the Faculty of Science and Engineering at Waseda University before assuming his current position in 2014. His research themes are rehabilitation assistance systems and remote medical RT.

URL <http://jubi-party.jp/>

**Hiroyasu Iwata**

Professor,  
Faculty of Science and Engineering



## FY2016- Key Researchers

Kataoka High-Precision Radiation Imaging Project

**Developing a High-Precision Radiation Imaging Sensor**

**This research is driving high-energy astrophysics via an international research project and contributing broadly to society with development of a revolutionary radiation imaging sensor.**

Graduated from the Department of Physics, Faculty of Science & Graduate School of Science at the University of Tokyo in 1995 and completed a doctoral course and Ph.D. (Physics) at the Graduate School of Science at the University of Tokyo in 2000. Served as an assistant professor at the Graduate School of Science and Engineering at the Tokyo Institute of Technology and as an associate professor at the Graduate School of Advanced Science and Engineering at Waseda University before assuming his current position in 2014. His specialties are gamma ray astrophysics and radiation applied physics.

URL <http://www.spxg-lab.phys.waseda.ac.jp/>

**Jun Kataoka**

Professor,  
Faculty of Science and Engineering



## FY2015- Key Researchers

Kawakami Musculotendinous Characteristics Exploitation Project

**Comprehensive Research on Human Muscle Characteristics and their Plasticity**

**This research focuses on human skeletal muscle and tendon architecture, function, and quality. Research is expected to clarify the mechanism of human movement in sports as well as daily activities, and to lead to development of the effective training modality.**

Graduated from the University of Tokyo, Faculty of Education (Physical and Health Education Department) in 1988, and received a masters degree (Exercise Physiology) in 1990 and a Ph.D.(Education) in 1995 from the Graduate School of Education, the University of Tokyo. Appointed as a research associate in the University of Tokyo in 1991, associate professor at the University of Tokyo in 1999, then moved to Waseda University as an associate professor in 2003 prior to starting his current job in 2005. His specialties are biomechanics, exercise physiology, and skeletal muscle mechanics.

URL <http://www.f.waseda.jp/ykawa/indexj.htm>

**Yasuo Kawakami**

Professor,  
Faculty of Sport Sciences



#### FY2015- Key Researchers

Toeda Reimagine Japanese Literature and Culture Project

### Reimagining Japanese Literature and Culture in the World

**Prof. Toeda promotes individual and collaborative research on Japanese literature and culture while conversing with leading researchers around the world. He also trains young researchers who are expected to play prominent roles in this field.**

Toeda completed his Ph.D. (Literature) at Waseda University, Graduate School of Letters, Arts and Sciences in 1993. He then worked as a lecturer at Otsuma Women's University and an associate professor in School of Humanities and Social Sciences at Waseda University before reaching his current position in 2003. His specialties are Japanese modern literature and culture. His research themes are Modernist Literature, Media Censorship and Literature, Film and Literature, and Tokyo and Literature. He won the Utsubo Kubota Prize in 1994.

**URL** <https://researchmap.jp/read0182137>

## Hirokazu Toeda

Professor,  
Faculty of Letters, Arts and Sciences



#### FY2015- Key Researchers

Todo Networks and Economic Growth Project

### Role of Networks in Economic Growth

**This research examines how social and economic networks drive economic development and growth through diffusion of knowledge and information. The project utilizes a wide variety of data, including big data for global supply chains and small data for local networks among rural households in developing countries.**

Received a B.A. from the University of Tokyo in 1991 and a Ph.D. in economics from Stanford University in 2000. He was a professor and the department head at the Department of International Studies, Graduate School of Frontier Sciences, the University of Tokyo and has occupied the current position since 2014.

**URL** <http://www.f.waseda.jp/yastodo/>

## Yasuyuki Todo

Professor,  
Faculty of Political Science and Economics



#### FY2015- Key Researchers

Kurumizaka Epigenetic Chromatin Structure Project

### Structural Basis of the Chromatin Dynamics

**Chromatin accommodates genome DNA in the nucleus. The project clarifies the epigenetic gene control mechanism by chromatin structure and dynamics.**

Graduated from Tokyo College of Pharmacy in 1989, and is a licensed pharmacist, completed his Ph.D. at the Graduate School of Science and Engineering, Saitama University in 1995. He worked as a postdoctoral fellow at the National Institutes of Health (NIH, USA), a research scientist at RIKEN, Associate Professor at (then) School of Science and Engineering, and Professor at the Faculty of Science and Engineering of Waseda University. Appointed Professor Emeritus at Waseda University and Professor at the Institute for Quantitative Biosciences of the University of Tokyo since 2018. His specialties are structural biology, molecular biology, and biochemistry.

**URL** <http://www.kurumizaka.sci.waseda.ac.jp/>

## Hitoshi Kurumizaka

Professor Emeritus  
Waseda University



Close up

#01

Arimura Environmental and Energy Policy Project

## Empirical Study of the Effects and Challenges of Environmental and Energy Policies

### Analyzing environmental issues by employing methods from the field of economics

Environmental economics is the academic field that analyzes environmental issues such as climate change, energy, and air pollution issues, by employing methods such as microeconomics and econometrics. Professor Toshi H. Arimura from the Faculty of Political Science and Economics is a researcher who is renowned internationally in this field of study, and to date, has conducted a wide range of empirical analysis from his own original perspective. He has published a large number of his research output in influential English journals and received acclamation both in Japan and abroad. This research project is a comprehensive empirical research on the effects and issues on environmental and energy policies, and aims to contribute to recommendations of effective policies.

Professor, Faculty of Political Science and Economics  
(School of Political Science and Economics)

**Toshi H. Arimura**



### Contributing to the formulation of policies based on evidence

In response to the international framework on climate change countermeasures, the Paris Agreement, Japan has established the goals of reducing greenhouse gas emissions by 26% by the year 2030 and by 80% by the year 2050, based on 2013 standards. With a view to realizing these targets, increasing attention is now being placed on carbon pricing such as carbon tax or emission trading, which puts a price on carbon dioxide. At the same time, there are also growing expectations toward non-price policies such as the “visualization” of electricity consumption. On the other hand, one of the challenges of environmental and energy policies in Japan is the current situation where evidence-based discussions are not necessarily being carried out.

In light of that, this research project conducts empirical analysis comprehensively by incorporating social experiments and the approach of structural estimation for both price and non-price policies, including an ex post facto review of carbon pricing. In addition, a comparative analysis with Germany, an environmentally-advanced country, as well as investigative analysis of developing countries, are also carried out in this project. Through these empirical analyses, the project takes a quantitative perspective on the actual effects brought about by the respective policies as well as where the challenges lie. Based on the knowledge gained through this research, I aim to contribute to the formulation of effective policies based on evidence.

### Establishing a hub for environmental policy research in Asia

This project pursues research in collaboration with researchers from Japan and abroad, going beyond the boundaries of faculties and universities. The ability to offer an environment that facilitates interdisciplinary academic collaboration is one of the major strengths of Waseda in its position as a large-scale university where social science faculties are concentrated in the same campus. In addition, being selected as one of Waseda University’s “Next-Generation Core Researcher” has allowed me to receive generous financial support and focus on my research. More than anything, Waseda’s culture of focusing on and rewarding research activities as a university-wide initiative provides a powerful boost for my research activities.

While “environment” and “economics” appear to have a conflicting relationship, suitable application of economic concepts and approaches can in fact contribute to elucidating the mechanisms that give rise to environmental problems, and to resolving such problems. This point, which could be described as paradoxical, is also the most interesting aspect of environmental economics for me. While disseminating my research output internationally, I aim to further strengthen my network with researchers overseas, and in future, establish a hub for environmental policy research in Asia where researchers from Japan and abroad can gather in Waseda to engage in joint research at all times.

Graduated from the Department of Arts and Sciences, College of Arts and Sciences of the University of Tokyo in 1992, completed the Master's Program in Environmental Sciences at the Graduate School of Environmental Sciences of the University of Tsukuba in 1994, and completed the doctoral program at the University of Minnesota (U.S.) with a Ph.D. in Economics in 2000. Previous appointments include Visiting Research Scholar for Resources for the Future (U.S.), Visiting Associate Professor at George Mason University (Abe Fellow), and Professor at the Department of Economics, Sophia University, before taking up the present position from April 2012. Specializes in global warming and energy policies, air pollution, and landscape protection, among others. Serves on several councils and as a member of review commissions in the Ministry of Environment and other organizations. Received the SEEPS Outstanding Publication Award from the Society for Environmental Economics and Policy Studies in 2018.

URL <http://www.f.waseda.jp/arimura/>

#### I Main research papers

- 1) “Information leverage: The adoption of clean cooking fuel in Bhutan.” *Energy Policy* (2019) Vol.125, pp.181-195. (Coauthor, N. Dendup) doi.org/10.1016/j.enpol.2018.10.054
- 2) Do Social Norms Matter to Energy-Saving Behavior? Endogenous Social and Correlated Effects,” *Journal of the Association of Environmental and Resource Economists*, (2016) Vol. 3 (3), pp. 525-553. (Coauthors, H. Katayama & M. Sakudo) DOI: 10.1006/686068
- 3) Cost-Effectiveness of Electricity Energy Efficiency Programs,” *The Energy Journal* (2012), Vol.33, No.2, pp.63-99. (Coauthors, S. Li, R. G. Newell & K. Palmer) DOI: 10.5547/O1956574.33.2.4
- 4) “Is ISO 14001 a Gateway to More Advanced Voluntary Action? A Case for Green Supply Chain Management,” *Journal of Environmental Economics and Management* (2011) 61, pp.170-182. (Coauthors, N. Darnall & H. Katayama) doi:10.1016/j.jeem.2010.11.003



▲ Indoor air pollution in India



▲ Scene at “Confronting Climate Change,” a forum held at the Walter H. Shorenstein Asia-Pacific Research Center, Stanford University, in October 2017

Close up

#02

Ogata Deep Cognitive System Project

## Development of Humanoid Robots for Multiple tasks by Deep Learning



Professor, Faculty of Science and Engineering  
(School of Fundamental Science and Engineering)

**Tetsuya Ogata**

Tetsuya Ogata received B.S, M.S and D.E degree in mechanical engineering from Waseda University in 1993, 1995, 2000 respectively. He was a Research Scientist at the RIKEN Brain Science Institute, Lecturer and Associate Professor with the Graduate School of Informatics, Kyoto University, and Researcher under the Japan Science and Technology Agency's PRESTO (Precursory Research for Embryonic Science and Technology) program. He took up his present position as Professor at the Department of Intermedia Art and Science, School of Fundamental Science and Engineering at the Faculty of Science and Engineering of Waseda University from 2012. He is a Joint-Appointed Fellow with the Artificial Intelligence Research Center (AIRC), AIST. Specializes in cognitive robotics. Also serves as a board member of the Japan Deep Learning Association (JDLA).

URL: <http://ogata-lab.jp/ja/>

### Main research papers

- 1) Hayato Idei, Shingo Murata, Ywen Chen, Yuichi Yamashita, Jun Tani, and Tetsuya Ogata: A Neurobotics Simulation of Autistic Behavior Induced by Unusual Sensory Precision, Computational Psychiatry, pp.1-19, Nov. 2018. DOI: 10.1162/comp\_a\_00019
- 2) Ryoichi Nakajo, Shingo Murata, Hiroaki Arie, and Tetsuya Ogata: Acquisition of Viewpoint Transformation and Action Mappings via Sequence to Sequence Imitative Learning by Deep Neural Networks, Frontiers in Neurobotics, July 2018. DOI: 10.3389/fnbot.2018.00046
- 3) Kanata Suzuki, Hiroki Mori, and Tetsuya Ogata: Motion Switching with Sensory and Instruction Signals by designing Dynamical Systems using Deep Neural Network, IEEE Robotics and Automation Letters (RA-L), Vol. 3, Issue 4, pp. 3481-3488, Oct. 2018. DOI: 10.1109/LRA.2018.2853651
- 4) Tatsuro Yamada, Hiroyuki Matsunaga, and Tetsuya Ogata: Paired Recurrent Autoencoders for Bidirectional Translation between Robot Actions and Linguistic Descriptions, IEEE Robotics and Automation Letters (RA-L), Vol. 3, Issue 4, pp. 3441-3448, Oct. 2018. DOI: 10.1109/LRA.2018.2852838



▲ Handling soft materials

### Creating robots that can collaborate with humans

Waseda University has a long tradition in humanoid research that spans over 50 years, beginning with the WABOT Project (a research group led by the late Professor Ichiro Kato), based on the concept of understanding humans by constructing intelligent robots. Professor Tetsuya Ogata of the School of Fundamental Science and Engineering has been working on “Cognitive Robotics” which could be regarded as one of the research fields following this tradition. Professor Ogata has tackled on this robotics research including the topics of development and learning through interaction with the environment by introducing latest deep learning technologies. He is also engaged in research toward a future of human-robot collaboration by participating in many industry-government-academia joint research projects and publishing the research output successively.

### Programming by integrating recognition and behavior

My research interest is understanding of human cognitive and learning systems through the development of intelligent robots with machine learning model for interacting the dynamic environment. The robot is required to predict the environment dynamics through its own behavior, and to adapt its behavior to the unknown situation when the prediction is failed. It is also important to make robots understand the ambiguity in recognition for behavior generation. For example the robot should move a cup gently because it is breakable, or should treat a cup as dirty object when ordered to wash it. We are tackling these important issues with robots and deep learning technologies.

One of the representative outputs of our research is the robot which can fold various towels using only deep learning model. The robot folding motions are trained by direct teaching with a human operator. Our deep learning model can handle the time sequences of multimodal information including captured images and joint angles. The robot can deal with various towels under different conditions, such as a shift in position or changes in shape.

### Creating robots with adaptability to novel situations

Professor Ogata presented this research as a Joint-Appointed fellow at the Artificial Intelligence Research Center, AIST. Then he started a joint research program with manufacturing companies of industrial robots, etc. This joint research developed a humanoid robot aimed at universal use by deep learning. A single robot with the same hardware and software (deep learning) can fold a towel or serve a salad by changing only the training data. This robot was presented in 2017.

Professor Ogata also participated in the joint development of a humanoid robot that engages in whole-body motions through the autonomous combination of multiple primitive movements. This robot was presented in 2018. This robot has a framework with multiple deep learning models trained with the individual movements of approaching a door, opening it, and passing through the opened door. This framework enables the robot to automatically decide on when to make each movement, and realized the significant reduction of the period for software development.

In the future, robots could provide support humans by dealing appropriately with the untrained situation, and humans can exert their creativity as far as possible. Hence, our laboratory engages in research with the aim of such intelligent robots collaborating with humans.



Close up

Takizawa Fluid-Structure Interaction Project

#03

## Developing Computational Methods Applicable to a Wide Range of Mechanical Engineering Problems

### Analyzing the interaction between the fluids and structures influencing each other

Structures that are not rigid deform under the influence of the forces generated by the fluids such as liquids and gases, and the deformed structures then influence how the fluid flows. This phenomenon is known as fluid-structure interaction. Studying this complex mutual interaction is the research theme of Professor Kenji Takizawa of the School of Creative Science and Engineering. Professor Takizawa, who helped with the design of the spacecraft parachutes to be used by NASA, is extending his research to a wide range of applications by developing computational methods accurately representing the physical principles of the phenomenon. He is cooperating with experts from different fields to conduct research in projects such as cardiovascular modeling, which will help understand cardiovascular diseases better, and flow analysis of tires with road contact.

Professor, Faculty of Science and Engineering  
(School of Creative Science and Engineering)

**Kenji Takizawa**



### Accurately capturing complex physical phenomena through computational analysis

I study complex phenomena that occur through fluid-structure interaction, in which fluids and structures influence each other, by innovating some of the most advanced computational engineering methods for this class of problems and engage in research applicable to the design of efficient structures and mechanical systems. In engineering, separate flow and structural analyses have a long history. However, high-precision analysis of the interaction between the two, which is a fluid-structure interaction, has been a longstanding challenge. In my research laboratory, fluids and structures that continuously undergo changes in their shapes, positions, and forces generated, are accurately captured through an advanced computational method. In this method, the space that the fluid occupies and the time over which the flow evolves are treated inseparably, in a consistent fashion. Then, using other advanced methods such as the isogeometric analysis, which accurately represents the solid surfaces given by the CAD model, we carry out high-precision computational analysis of the fluid mechanics and fluid-structure interaction problems we are targeting.

After conducting research on ocean currents and ship hydrodynamics in Japan, I worked at Rice University in Houston with Professor Tayfun Tezduyar, who is a world authority in fluid-structure interaction. Since returning to Japan, I have been working on fluid-structure interaction not only with structure shape changes but also with contact between the structure surfaces. This makes the computational analysis even more challenging because the spaces occupied by the fluid appear and disappear, which is called "topology change."

### Addressing the computational challenge of topology change

In the fluid-structure interaction between the blood and heart valve, for example, the opening and closing of the valve creates a topology change for the space over which the blood flows. Because of this, how we represent the space occupied by the blood and how the blood flows change significantly. Hence, in addition to the core computational methods where the space and time are treated inseparably, I am innovating special space-time methods that can respond to topology changes. With that and through joint research with doctors, I am exploring effective diagnosis tools, based not only on the blood flow but also on the mechanical aspects such as the stress in the blood vessels.

Topology changes also occur in flow analysis of tires with road contact. The space occupied by the fluid in front of the tire disappears as the tire rolls over the road, and new space is created behind the tire. Doing the flow analysis accurately with such topology change has of course much significance in predicting the heat transfer from the tire to the surrounding air during a drive. I am now engaged in a joint research on that with tire manufacturers.

Until recently, in flow analysis involving topology change, such as contact between solid surfaces, it was not possible to have both the actual representation of the contact and the high-resolution representation of the flow near the solid surfaces. One had to give up on either the actual representation of the contact and replace it with an approximate one or the high-resolution representation of the flow near the solid surfaces and replace it with a low-resolution one. With the special space-time method that can handle topology changes, we do not have to give up on either, and that is the beauty of it. With this uncompromised representation, we can bring a never-before-seen analysis quality to medical and industrial applications where topology changes and need for high-resolution flow representation are both inevitable.

After graduating from the Department of Mechano-Aerospace Engineering at the Tokyo Institute of Technology in 2001, Takizawa continued to obtain his doctoral (Science) degree at the same university in 2005 in the Department of Energy Sciences, Interdisciplinary Graduate School of Science and Engineering. After working as a researcher at the National Maritime Research Institute, and as Research Associate and Research Scientist at Rice University in Houston, he worked as an Associate Professor in 2011 at the Waseda Institute for Advanced Study (WIAS). He also worked as an Associate Professor in the Faculty of Science and Engineering at Waseda University before reaching his current position in 2018. Takizawa specializes in high-precision fluid-structure interaction analysis through unique methods and is applying his research to biomechanics, such as computational analysis of cardiovascular systems. He received many awards, including the 4th Japan Research Front Award (2016), which commends authors of papers highly cited in the world, and the 15th JSPS Prize (2018) that selects promising young researchers who are expected to become future leaders in academic research in Japan.

URL <http://www.jp.tafsm.org/>

#### Main research papers

- 1) K. Takizawa and T.E. Tezduyar, "Multiscale space-time fluid-structure interaction techniques", *Computational Mechanics*, 48 (2011) 247-267, 10.1007/s00466-011-0571-z
- 2) K. Takizawa and T.E. Tezduyar, "Space-time fluid-structure interaction methods", *Mathematical Models and Methods in Applied Sciences*, 22 (2012) 1230001, 10.1142/S0218202512300013
- 3) K. Takizawa, T.E. Tezduyar, T. Terahara, and T. Sasaki, "Heart valve flow computation with the integrated Space-Time VMS, Slip Interface, Topology Change and Isogeometric Discretization methods", *Computers & Fluids*, 158 (2017) 176-188, 10.1016/j.compfluid.2016.11.012
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▲ Computational fluid-structure interaction analysis of the Orion spacecraft parachutes

Close up

#04

Horizontal and Integrative Network Of Public OPinion and VOTing bEHaviour Research(HINO-POPVOTER)

## Research on the Formation of Public Opinion and Voting Behavior based on Social Media Analyses



Professor, Faculty of Political Science and Economics  
(School of Political Science and Economics)

**Airo Hino**

### New electoral research through cross-national comparisons

Professor Airo Hino carries out electoral research from the perspective of cross-national comparisons, as compared to conventional electoral research that takes a single country as its subject. At the research institute in Belgium, he carried out comparative research on how new challenger parties entered into the political arena in 15 Western European countries. Currently, together with collaborative researchers from Europe and North America, he is carrying out a comparison of the respective countries on how dissemination of information from the mass media and social media trends influence the molding of public opinion and voting behavior. Furthermore, he is also engaged in a project that carries out sampling of Twitter accounts and archives them as a tool for conducting scientific analysis on political movements.

### Focusing on comparative electoral studies based on consensus-based democracies of Europe

My research began with an interest in the politics of Belgium, which has Dutch, French, and German as its official languages, faces the issues of religious confrontation and economic disparity, and where the green parties and ethno-regionalist parties are emerging, and most parties are split across the language divisions. This consociational style of democracy, which attempts to build consensus within various axes of confrontation, is often found in Western European countries. In Europe, political parties that advocate post-materialism have gained power in Belgium early on, while such parties had emerged late in the neighboring country of the Netherlands. This puzzle can be explained by the varying degrees of activities of political actors and the choices of voters in each country.

While exploring the reasons behind this, I focused on the research method of comparative electoral studies, which takes into account the impact that the axis of social conflict and electoral systems have in each country. During my time as a research fellow at the research institute in Belgium, I carried out comparative analysis on the entry of emerging political parties into the political arena, focusing on 15 Western European countries in my study. I make a comparison from the perspectives of viability of coalition governments that happen to be a common feature of consociational democracies, the diversity of policies of the existing political parties, and the degree to which minority views are reflected in the election platforms, and draw out the differences in the process in which emerging political parties win support through the people's dissatisfaction with the existing parties.

### Analysis of social media, which sheds light on people's sentiment in real-time

Based on the theme of electoral comparison in Japan and abroad, I have also begun research that uses social media to follow, in real-time, changes to people's opinions and political interests, in addition to the conventional public opinion surveys that take a periodic overview of these opinions and interests. Collaborative researchers from Europe, the United States, and Canada are also conducting studies and carrying out cross-national comparisons under the same framework. In 2016, the Waseda Institute of Social Media Data (WISDOM) was established to host international collaborations. By sampling Twitter accounts with Japanese as the main language, and creating a database using these samples, we are building a research environment that allows collaborative researchers to carry out scientific validation of the situations in the past.

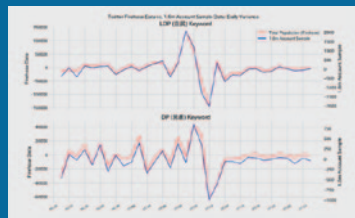
I have analyzed this information statistically, and demonstrated the role that mass media and social media plays in molding public opinion for Japanese Diet's bills related to collective security in 2015. Although information from the mass media had an impact on social media on security policies per se, a part of the activities such as demonstrations began with Twitter postings that were then pursued by the mass media. Hence, the research showed clearly that the interplay of the two aspects contributed to the molding of public opinion. At the same time, 2019 is the elections year when unified local elections coincide with House of Councillors elections. Bearing that in mind, I am pursuing my research with a view to predicting elections results based on social media analysis and developing voting advice applications.

After graduating from the School of Political Science and Economics at Waseda University in 1998, he completed the Master's program at the Graduate School of Political Science, also at Waseda University, in 2000. In 2006, he completed the doctoral program in the Department of Government at the University of Essex and received his Ph.D. (in Government). From 2002, he served as a Japan Society for the Promotion of Science (JSPS) Research Fellow for two years. From 2004, he carried out research at the Instituut voor Sociaal en Politiek Opiniononderzoek (ISPO) of Katholieke Universiteit Leuven (KUL) on a scholarship from the Belgian government, and then became FRS Fellow at the Centre de Politique Comparée (CPC) of Université Catholique de Louvain (UCL) in 2006. In 2007, he was appointed Associate Professor at the Graduate School of Social Science and the Faculty of Law, Division of Political Science, at the Tokyo Metropolitan University. In 2010, he was appointed Associate Professor at the Faculty of Political Science and Economics, Waseda University, and took up his current position in 2014. He also serves as the Director of the Waseda Institute of Social Media Data (WISDOM).

URL <https://goo.gl/7cK8oJ>

#### Main research papers

- 1) Hino, A. and Fahey, R. 'Representing the Twittersphere: Archiving a representative sample of Twitter data under resource constraints.' *International Journal of Information Management*, 2019, doi: 10.1016/j.ijinfomgt.2019.01.019.
- 2) Curini, L., Hino, A. and Osaki, A. 'The intensity of government-opposition divide as measured through legislative speeches and what we can learn from it: Analyses of Japanese parliamentary debates, 1953-2013.' *Government and Opposition*, 2018, doi:10.1017/gov.2018.15.
- 3) Hino, A. and Imai, R. 'Ranking and rating: Neglected biases in factor analysis', *International Journal of Public Opinion Research*, 2018, doi:10.1093/ijpor/edy007.



▲ Proposing a new method of collecting Twitter, which can nearly reproduce the actual figure (red line) through samples (blue line) (House of Councillors election in 2016)



◀ Comparative analysis of the emergence and success of new challenger parties, published by Routledge



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## Green Computing Systems Research Organization

Type Research Council

Year established 2011

Website <https://www.waseda.jp/inst/gcs/>

### Developing ICT foundation technology for realization of a low-carbon society friendly to earth

The Green Computing Systems Research Organization aims to realize a sustainable society that considers the environment and actively promotes research on various next-generation information communication technologies (ICT) needed to advance green innovation, such as ultralow power processors, next-generation computing, and software. The Organization brings together the six institutions of the Advanced Multicore Processor Research Institute, Perceptual Computing Laboratory, Global Software Engineering Laboratory, Global Robot Academia Laboratory, Research Institute for Next-Gen Computing, and the Frontier Fluid-Structure Interaction Analysis Institute to actively interact with industries and promote R&D on green ICT technology using high-performance multicore processors at ultralow power consumption, through industry and academia collaboration. The completion of the Green Computing System R&D Center, a site for collaborative research between industry and academia with support from the Ministry of Economy, Trade and Industry's (METI) "Project for Industrial Technology Research and Development Facilities," plays an important role in training young researchers who participate in cutting-edge joint research to become resources that contribute to creative technology development.



▲ Collaboration and synergies among Project Research Institutes

## Advanced Collaborative Research Organization for Smart Society

Type Research Council

Year established 2014

Website <http://www.waseda.jp/across/>

### Aiming to be a global top-level research site for smart society technology

Pursuit of "smart capabilities" seeks broad inroads by ICT in society, expanded social interest in energy and the environment, and overall optimization through elimination of waste and improved efficiency. Today's world is truly moving toward a smarter society. The targeted smart society must not only provide shelter and food, as basic needs, to individuals, but also allow for activity, offer comfortable, healthy, and safe conditions, and be friendly to the environment.

The Advanced Collaborative Research Organization for Smart Society (ACROSS) is addressing five smart domains (smart homes, condominiums and buildings, smart health support, smart mobility, smart food, and smart grid) through ten research groups in order to create an ideal vision of a smart society and drive its realization at the cutting edge of efforts. It aims for a society that is organically linked via information and energy services. Furthermore, it hopes to deliver excellent results requested by society through "provision of university knowledge", "planning and proposing joint projects", and "fostering interaction among people" and formation of a venue that help technology to blossom aided by interaction of people.



▲ Organization conceptual diagram

## Research Organization for Next Generation Vehicles

Type Research Council

Year established 2014

Website <http://www.waseda.jp/nextgv/top/>

### Automobile powertrain research site for development of innovative engine technology

Research on automobile engines and catalysts has a very long history at Waseda University, beginning in the Department of Modern Mechanical Engineering (School of Creative Science and Engineering) and Department of Applied Chemistry (School of Advanced Science and Engineering), and has received a high reputation.

The university held a central role in R&D work on clean diesel engines attracting interest in Europe and other major markets in 2014 through consignments from the Research Association of Automotive Internal Combustion Engines (AICE) of various projects in the "Research and Development Project for the Advancement of Clean Diesel Engine Technology" of METI. Additionally, it was selected as an academic research site for "Innovative Combustion Technology" under the Cabinet Office – JST Strategic Innovation Promotion Program (SIP). Waseda University launched the Research Organization for Next Generation Vehicles in 2014 as a research site that mainly handles these two initiatives and aids a smooth transition to next generation vehicles while maintaining and advancing international competitiveness in cutting-edge internal combustion and catalyst development areas at the heart of automobiles.

Since its formation, our talented researchers are cooperating to achieve smooth progress with the projects, and the university has proposed a new model for mechanical engineering R&D system. Additionally, the university is targeting cultivation of human resources who are capable of functioning in industry or academia and use of research results in industry, administration, and other social systems by promoting practical research.



▲ No.58 Building (Laboratory) at Waseda University



## Future Robotics Organization

Type Research Council

Year established 2015

Website <https://www.waseda.jp/inst/fro/>

### Pursuing development of robots that co-exist with people

Co-existence of human beings and robots is an everlasting theme of robotics researchers. The Organization implements research on themes of disaster response (Institute for Disaster Response Robotics), healthcare (Institute for Healthcare Robotics), and co-creation (Institute for Human Robot Co-Creation) with the goal of forming a research site that promotes peaceful utilization of robots in order to realize a truly prosperous human society.

Waseda's robotics research does not restrict itself to industrial robots and aims to create original robots with the concept of "human beings". For manufacturing activities, we exploit knowhow related to computer, electric circuit, and machinery materials and designs as well as knowledge about medical, psychology, and other areas.

Waseda University established an education research site targeting global top-class "co-existence of people and robot technology" with catalysts from the 21st Century COE Program, Global COE Program, and other initiatives in order to enable advances in robot technology to become a "genuine intellectual social foundation" ahead of the world. It is cultivating many young people with "break-through capabilities" through a variety of unique programs and has formed a global top-class RT educational research site.



▲ Octopus disaster response robot

## Organization for Regional and Inter-regional Studies

Type Research Council

Year established 2015

Website <https://www.waseda.jp/inst/oris/>

### Developing Mechanisms for Reconciliation and Coexistence between Regions

The Organization for Regional and Inter-regional Studies (ORIS) was established in April 2015, integrating the Waseda Organization for Asian Studies, the Waseda Organization for Japan-US Studies, and the Waseda Organization for European Studies. Restructuring these three former organizations into the Asian Research Unit, American Research Unit, and European Research Unit, and adding the newly established African Research Unit group, it aims to seek a shared order and to propose solutions to issues in different regions.

Under the theme "the inter-regional relationships and possible co-existence between nations in Asia, North and South America, Europe, Africa, and the Middle East", ORIS runs two core research projects. One project examines how historical processes have formed separate regional [socio-political] orders. The other project aims to create a shared order for some areas, and to explore the applicability of this new innovation in other areas under the current context of accelerating globalization.

<Our aims>

Formation of an active intellectual platform for transdisciplinary regional and inter-regional studies from the perspectives of Asia / Discovery, and creation and education of the "Global Common Knowledge"; and delivery of feedback to the societies / Formation of the forum for academic-practitioner exchange, and provision of new opportunities for young researchers / Contribution to the Waseda academic community as an effective international research wing of the university



## Research Organization for Nano & Life Innovation

Type Research Council

Year established 2015

Website <https://www.waseda.jp/inst/nanolife/>

### Seeking Waseda-style innovation with nanotechnology

The Organization, which brings together researchers who produced results at the Institute for Nanoscience & Nanotechnology and Consolidated Research Institute for Advanced Science and Medical Care (ASMeV) and is equipped with cutting-edge equipment, promotes backcasting-type R&D for global issues through seven Project Research Institutes, more than 20 large public research projects, and a wide range of joint and consignment research with domestic and overseas companies.

The Nanotechnology Research Center, along with the Smart Energy System Innovation Center, gives researchers and students a high-level research environment, including three clean rooms (with a 100-class room), chemistry experiment rooms, and nano-order processing, measurement, and evaluation equipment as part of MEXT's Nanotechnology Platform (NPF) initiative. The Organization is promoting interaction and human resource cultivation for young researchers and engineers via agreements with major university research institutes, the Nanotechnology Forum (NFM), an industry, academia, and government collaboration body, and others, and dissemination of information to society.



▲ Experiment taking place in NTRC's clean room

## Research Organization for Open Innovation Strategy

Type Research Council  
Year established 2018  
Website <https://www.waseda.jp/inst/oi/>

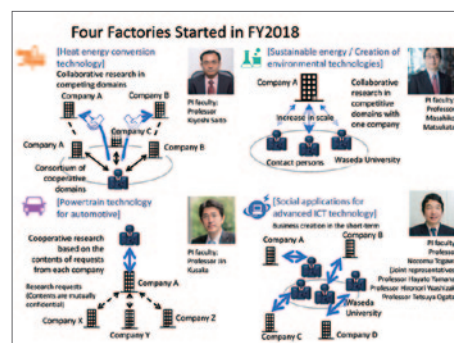
### Aiming for the early establishment of a “social implementation research center” to realize an innovation ecosystem through collaboration with industry and academia

The Organization seeks to establish a research support system within the university to generate innovation from the university's industry and academia collaborative efforts and realize their social implementation. Through these efforts, it aims to fully participate in the acceleration of solving problems in modern society and the creation of value to build a new industrial society, which is the aim of industry and academia collaborations at the university going forward.

In order to innovate and realize social implementation, it is necessary to break from the traditional framework and develop organization–organization collaboration, in other words, university–business collaborations.

This necessitates assigning complicated tasks to specialized human resources and developing an environment where researchers can devote themselves to their research activities.

By having the vice president of the university serve as the Organization's director along with a deputy director who has corporate executive experience and inviting seasoned business professionals with experience in corporate activities and legal and intellectual property experts, the Organization aims to strategically build a system to support the management of research activities as a university. It is the Organization's mission to spread the experience and knowledge gained through its activities throughout the university, and it will strive to involve many researchers within the university to further enhance its research capabilities and ability to contribute to society.



▲ Four Factories Started in FY2018

## Comprehensive Research Organization

Type Research Council  
Year established 2000  
Website <https://www.waseda.jp/inst/cro/>



### Interdisciplinary research site advancing through collaboration

Waseda University launched the Project Research Institute in April 2000 with the aim of fostering advanced research that contributes to development and welfare of human society by quickly catching up with the requirements of the society and period and using a multifaceted approach that covers a variety of academic disciplines. Project Research Institutes bring together many different people based on the five themes of “create a social structure for the future”, “support cultural heritage and development”, “make contributions to the future of regional communities”, “explore new methods for teaching and learning” and “pursue cutting-edge technology.” Without limitations on the faculty or research field (arts or sciences), a team of at least four dedicated teachers is formed and defines research topics and promotes free, flexible research activities for a fixed period utilizing research participation fees paid by participating researchers and external funds. Researchers from other schools participate too as research members, thereby enabling the formation of a global research organization led by Waseda University.

The Comprehensive Research Organization oversees the management of the diverse line-up of roughly 120 Project Research Institutes. It plays a major role as a research center that leverages the research activities of all of the school's faculty and researchers and promotes research activities based on social collaboration.



▲ Institute of Comparative Archaeology

## Organization for University Research Initiatives

Type Research Council  
Year established 2009  
Website <https://www.waseda.jp/inst/ori/>



### Promotion of priority research initiatives through the University's strategy

Universities aiming to be international research universities have a duty to contribute to discovering and resolving global-level topics for the 21st century through advanced science and research. This requires further reinforcement in areas where Waseda University has strengths compared to other universities by bringing together researchers beyond the boundaries of faculties, research organizations, and other formats, formation of research teams that can compete with the world via accelerated globalization and international joint research, and promotion of practical learning with a link to society.

Since its establishment in 2009, the Organization for University Research Initiatives has manifested the university's strengths through specific advanced research projects and positioned research by university-wide synergistic collaboration aimed at realizing site formation as priority-area research. The university conducts effective research management through systematic assessment and progress management by project managers while supporting a wide range of research activities through the implementation of research topics by Project Research Institutes.

By promoting research initiatives, the university stimulates research including the cultivation of human resources. It aims to solidify autonomous, sustainable research operations by acquiring new external research funds and collaborating with external organizations and to share research results broadly with society to help resolve the abovementioned issues and contribute to realization of a better society.







## Waseda Institute of Political Economy

Type Faculty of Letters, Arts and Sciences  
 Year established 1978  
 Website <https://www.waseda.jp/fpse/winpec/>



### A core research organization for research on politics, economics, and journalism

The Waseda Institute of Political Economy, established in 1978, carries out academic research and analysis on issues confronting modern society, and engages in activities with the aim of providing meaningful policy recommendations with a view to society in the future. It has also inherited a tradition of contributing greatly to the world of mass communication and journalism and the relevant research. Since its establishment, it has also been involved in analysis and research of modern problems in these fields from the perspectives of politics and economics.

In recent years, it has deepened its collaboration with other research institutes, and expanded its scope to include interdisciplinary research on the environment, energy, medicine, and development, the building of Sustainability Science, comprehensive research on the EU, gathering of materials from the post-war era, and systematic historical research of post-war history. In addition to deepening and developing research in such related fields, it is also putting effort into enhancing support for young researchers with the aim of further contributing to improving Waseda's research system and international research capabilities, as well as nurturing researchers.

Forty years have passed since its establishment. With the aim of becoming a core hub for political economic research not only in Waseda University but also in Japan, the Waseda Institute of Political Economy is collaborating with the Center for Positive Political Economy under the auspices of the Top Global University Project, and is taking up a variety of research challenges more than ever before.



▲ Japan-EU Friendship Week Symposium

## Institute of Comparative Law

Type Faculty of Law  
 Year established 1958  
 Website <https://www.waseda.jp/folaw/icl/>



### Conceptualizing a legal system that corrects the unevenness of globalization through the three layers of “global,” “region,” and “country”

The Institute of Comparative Law was established in 1958 with the aim of contributing to the comparative research of legal systems in Japan and other countries, and to the research and education of legal studies in Japan. Since then, it has strived to systematically gather and maintain a collection of materials on legal systems in Japan and other countries. The scale of its collection of magazines on laws, case studies, and other subjects related to law is one of the greatest in Japan. Today, in tandem with the development of legal systems that are unique to Japan, it is also engaged in spreading Japanese law worldwide, and uncovering and questioning important issues in contemporary legal studies.

The Institute of Comparative Law organizes symposiums with leading guest researchers in all areas of legal studies from around the world, as well as other events. In addition, members of the Institute have established 23 joint research projects and are actively engaged in research on comparative law. “Promoting the Study of Law and Sustainability” has been positioned as an Institute-wide research project that reflects on the realities of social life after the modern times based on the premise of economic growth, including dwindling natural resources, the destruction of the earth's environment, and excesses in production and labor. It seeks to make the transition to a sustainable society with a view to future generations, and examines the role of laws and legal studies that adjust while striking a balance between the three elements of economy, society, and environment.

The Institute of Comparative Law disseminates its research output through the publication of the periodicals *Comparative Law Review*, *Comparative Law Study Series*, and the *Waseda Bulletin of Comparative Law* in print format, and the ad-hoc online publications *Topics of Japanese Law*, *Online Journal*, and *Online Forum*.



▲ International symposium “Promoting the Study of Law and Sustainability” to mark the 60th anniversary of the founding of the Institute of Comparative Law (September 29–30, 2018, Ono Memorial Hall)

## Center for Professional Legal Education and Research

Type Faculty of Law  
 Year established 2007  
 Website <https://www.waseda.jp/folaw/cpler/>



### Fostering excellent legal experts through research and continuous education

The Center for Professional Legal Education and Research (CPLER) fosters excellent legal experts and operates three divisions (research, education, and collaboration with external parties) with the aim of contributing to advancement of a society based on rule of law. Primary activities are 1) theoretical and applied research on legal practice, 2) practical education in Waseda Law School and career assistance for law school graduates, 3) advanced specialty education for legal experts, and 4) bolstering collaboration through provision of legal information service to university graduates in the legal profession.

Additionally, it published the No.1 issue of the *Waseda Law School Journal*, a legal magazine that focuses on being a bridge between theory and practice, in FY2016. Waseda hopes that the journal will serve as a way of sharing educational and research results accumulated under the law school program with society and disclosing research results of young jurists who complete law school.

It also launched a Law Recurrent Course (continuous education course) in FY2016. This program offers a new cutting-edge realistic curriculum primarily for jurists who completed law school for the purpose of providing sustainable, continuous support after students have become legal professionals. Please refer to the center's website for details.



▲ Building No.27 (Azusa Ono Commemorative Building)



## Research Institute for Letters, Arts and Sciences

Type Faculty of Letters, Arts and Sciences  
 Year established 2012  
 Website <https://www.waseda.jp/flas/rilas/>



### Advancing the frontier of humanities research

The Research Institute for Letters, Arts and Sciences (also known as RILAS) is a center established in the Faculty of Letters, Arts and Sciences, Waseda University, which has promoted humanities research for more than 120 years, with a mission of "passing down accumulated knowledge of humanities and cultural sciences to the future generations, and addressing and seeking answers to the issues facing humanity."

The important characteristic of the research activities at RILAS is that it not only fosters individual researchers to pursue deeper knowledge in the fields of specialization, but also promotes joint researches that advance collaboration and integration of various research themes. RILAS is currently conducting a wide range of research efforts with 15 interdisciplinary research groups as its core.

Besides the research activities of individual researchers, RILAS has four major initiatives: cultivation of young researchers through collaboration with graduate school education, acceptance of researchers from overseas, promotion of international research interaction, including lecture events and symposia, and acceptance of funded research and joint research in response to the social requests. RILAS intends to continue pursuing a variety of research project as a pioneer in humanities research while collaborating with many researchers at the university and from outside. The outcomes of these various research institute members are published in the online journal WASEDA RILAS JOURNAL. Please take a look at the open website of the journal.



▲ The 9th East Asian Humanities Forum

## Institute for Advanced Studies in Education

Type Faculty of Education and Integrated Arts and Sciences  
 Year established 1986  
 Website <https://www.waseda.jp/fedu/iase/>



### Comprehensively studies contemporary issues based on an understanding of inherent educational value

Tough questions are being asked about the true value of education in modern society with steady advances in information access and internationalization and a mix of diverse value systems. It is important to grasp contemporary educational issues broadly with an advanced and interdisciplinary perspective and engage in initiatives related to specific implementation of education for tomorrow.

The Institute started as the Laboratory for Advanced Studies in Education in the Faculty of Education in April 1986 and was reorganized as the Institute for Advanced Studies in Education on a university-wide scale in September 1998. Roughly 30 years has passed since the establishment of the research group. The Institute intends to carry on the legacy of past results and pursue effective research that addresses contemporary issues.

The Institute's main activities are holding lecture events, symposiums, and seminars, arranging and assisting public placement research, and editing and issuing periodicals (Institute Bulletin, Waseda Review of Education, Waseda Education Monographs, Waseda Education Booklets). These publications and research announcements disclose the results from publicly funded research.

The Institute President and Vice President, management committee members, operating committee members (general affairs committee and editing committee), and secretariat collaborate and cooperate in running the Institute. The Institute hopes to attract active participation from people in the education field and those with interest in education.



## The Research Institute of Business Administration

Type Faculty of Commerce  
 Year established 1974  
 Website <http://www.waseda.jp/sanken/index.html>



### Research of cutting-edge industry management issues from various perspectives

In the 45 years since its establishment in 1974, the Waseda University Research Institute of Business Administration has taken on the role of a research institution that connects the industrial and academic worlds, and has been engaged in research on cutting-edge issues broadly related to industry management from various perspectives.

Today, the Research Institute, led by faculty members from Waseda University's School of Commerce and Graduate School of Accountancy, together with many guest researchers from outside the university, has research subcommittees corresponding to the respective research themes, and promotes academic research on a daily basis.

In addition to promoting research internally, it is also actively engaged in disseminating research output, giving back to society, and collaborating with the field of education, in order to fulfill its mission of contributing to the real world through academic output generated in its research activities. These efforts include publishing its own journals, organizing research seminars and lectures, organizing forums and symposiums, and undertaking commissioned research and training projects from external organizations.

Recently, it has also taken up new and different challenges, including organizing forums in local regions, symposiums organized jointly with international academic societies, lecture series, and educational programs commissioned by overseas affiliate schools and corporations.

Going forward, the Research Institute will continue to take on new challenges in order to promote research in the field of industry management, and to contribute to society.



▲ Sanken Academic Forum

## Institute for Business and Finance

Type Faculty of Commerce

Year established 2017

Website <https://www.waseda.jp/fcom/wbf>

### Promoting world-class business and finance research, and developing executive education

Waseda University Institute for Business and Finance was launched on September 1, 2017 through the integration of the Center for Finance Research and WBS Research Center.

By engaging in basic and applied research with a focus on business and finance, it fulfills its role as a core research institute for business and finance. At the same time, it aims to nurture professionals with an advanced level of specialized knowledge who are able to give back to society through their research output, and to contribute widely to the development of human society.

As an institute that is positioned at the core of executive education, the Institute for Business and Finance works as one with the Waseda Business School, the educational division for MBA, to develop education and training programs aimed at fostering management professionals who will become leaders of next generation.

By integrating the education and research systems of this Institute and WBS, it aims to produce and disseminate world-class research output through basic and applied research in the fields of business and finance, and give back extensively to the education sector as well as society.



▲ Scene of executive education

## Waseda Research Institute for Science and Engineering

Type Faculty of Science and Engineering

Year established 2006

Website <https://www.waseda.jp/fsci/wise/>

### Largest science and engineering research organization at the university

Since its establishment in 1940, the organization and name of the Waseda Research Institute for Science and Engineering, which had started out as the Science and Engineering School Research Laboratory, have changed with the times. However, the philosophy behind its activities has remained unchanged—to collaborate with society to carry out research on the basics and applications of science and engineering, including interdisciplinary research, as well as to develop and expand this research, in order to contribute to the development of science and technology and the welfare of humankind.

Research activities are undertaken by close to 1,000 researchers affiliated to the Research Institute, from within and outside Waseda University. The external funds received by the Institute through commissioned and joint research, amongst other sources, makes up about half of the total amount of funds received by the university as a whole. Hence, the Waseda Research Institute for Science and Engineering is a core part of the university's research activities. The number of research projects carried out in collaboration with various external organizations, reaches about 80 projects that extend across four departments—bioscience, environment, science, and technology. In addition to a wide range of research support activities aimed at publicizing the research output and actively giving back to society, such as support for organizing lectures and introducing the activities of the Research Institute through publications, it also supports and nurtures young researchers through initiatives such as the Early Bird Program.

The Research Institute designated seven priority research areas in FY2018 and established the Waseda Earth Regeneration School (WERS), with the aim of further developing science and engineering research in Waseda University.



▲ Waseda Earth Regeneration School (WERS) study seminar

## Kagami Memorial Research Institute for Materials Science and Technology

Type Faculty of Science and Engineering

Year established 1938

Website <https://www.waseda.jp/fsci/zaiken/>

### The first laboratory affiliated with a department of science and engineering of a private university in Japan

In 1938, the Kagami Memorial Research Institute for Materials Science and Technology was established with the name of Casting Research Laboratory, as the first laboratory affiliated with a department of science and engineering of a private university in Japan. The Casting Research Laboratory was a research center for cast metal, which was a base material to support the development of heavy industries such as shipbuilding, in pursuit of an important national policy at that time in Japan. In 1988, on the 50th anniversary of its founding, the Casting Research Laboratory was renamed the Kagami Memorial Research Institute for Materials Science and Technology and has since researched a wide variety of materials.

In regard to the organizational hierarchy of the university, in 2006, the laboratory changed its affiliation from Waseda University to become a cluster laboratory of the Waseda Research Institute for Science and Engineering. Then, in 2017, the Kagami Memorial Research Institute for Materials Science was separated from the Waseda Research Institute for Science and Engineering and became affiliated with Waseda University's Faculty of Science and Engineering. On April 1, 2018, the research institute was approved by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) to operate as a Joint Usage/Research Center called the Joint Research Center for Environmentally Conscious Technologies in Materials Science. The research institute has just made the first step towards a research institution that will be open not only to Waseda University but also to all of Japan. We intend to work hard to help develop Japan's materials research in collaboration with other Joint Usage/Research Centers for materials science throughout Japan.



▲ Exterior of Zaiken



## Global Information and Telecommunication Institute

Type Faculty of Science and Engineering  
 Year established 1998  
 Website <https://www.waseda.jp/fsci/giti/>



### Contributing to the realization of an affluent, safe, and secure future society

Highly advanced information and communications systems are used widely in communication between human beings, and utilized in the areas of security, medicine and welfare, transportation, energy distribution and social infrastructure. They have contributed to the realization of a rich society. On the other hand, the globalization of society that has progressed against the backdrop of this development of information and communications systems, has generated new forms of disparity (information disparity). Some have pointed out that this information disparity, when tied in with the problem of economic disparity, environmental issues, and issues related to resources, food and population, is gradually becoming one of the destabilizing factors of society. In order to build an affluent, safe, and secure society in the future, we not only have to strive to advance information and communications systems as well as improve their reliability, but also have to put effort into resolving the various issues surrounding information and communications. The Global Information and Telecommunication Institute collaborates with all industries, and also with universities and research institutes from around the world, Japanese research institutes, and government ministries and agencies, to nurture researchers who can contribute to society through information and communications technology, with the aim of establishing an advanced information and communications infrastructure in a wide range of cross-disciplinary academic and practical fields.



▲ Broad-area sensor network test using unmanned aircraft

## Environmental Research Institute

Type Faculty of Science and Engineering  
 Year established 2002  
 Website <https://www.waseda.jp/fsci/weri/>



### Practical approach to the environment through initiatives with industry, academia, government, and citizen efforts

This research institute was founded in 2002 to seek solutions to increasingly complex environmental problems on a global scale. It conducts R&D aimed at solving problems with a multidisciplinary approach and makes the fullest use of the overall capabilities of Waseda University. It also actively promotes a practical approach of validating R&D results with the "3G's," namely the field (genba), original (genbutsu) and reality (genjitsu). While advances in science and technology have vastly improved our lives in material ways, high-volume consumption of resources and energy through various social and economic activities is causing a variety of environment and resource problems. Many mutually contradictory challenges exist in the current world. It is very important to address these issues with diverse perspectives, including a spatial approach that extends from the areas where we live (nature, cities, farming and fishing villages, forests, and mountainous areas) to the entire country, Asia and the world, a temporal approach of past, present, and future related to environmental issues, and an approach related to diverse industries, social and economic systems, and legal systems and policies as well as traditions, cultures, and lifestyles. Cumulative negative legacy might become irreparable unless problems are resolved collaboratively by fully studying issues, sharing future goals and plans, and leveraging the stances and attributes of industry, academia, and government plus related citizen groups. The Institute collaborates with researchers and various entities at Waseda University and outside the university and implements practical research aimed at making contributions to society.



▲ Electric bus WEB-3 developed by Waseda University

## Information, Production and Systems Research Center

Type Faculty of Science and Engineering  
 Year established 2007  
 Website <https://www.waseda.jp/fsci/ipsrc/>



### Disseminating information as a global-level research site with industrial, government, and academic collaboration from Kitakyushu, a city with manufacturing roots

This research center (IPSRC) engages in a broad range of activities with the Graduate School of Information, Production and Systems from education research to local and social contributions, including support for knowledge advancement in automotive and semiconductor industries concentrated in northern Kyushu, joint research and project participation with domestic and overseas research entities and companies, provision of science and engineering learning opportunities to middle and high school students, and holding open classes and technology seminars. The International collaboration Symposium on Information, Production and Systems, which is held once a year, attracts about 150 people from Japan and other countries. This is a major event for announcements of joint research results and the latest technology and research trends in presentations and posters and provision of a forum for inter-disciplinary interaction by participants.

The Kitakyushu Science and Research Park, which brings together the IPSRC, IPS, three universities, and companies, focuses on automobiles as a core area and forms a global-level research site with industrial, government, and academic collaboration that serves as a "partner graduate school" for learning about car electronics and car robotics from corporate engineers who are active on the front line of business as teachers and conducts field tests for next-generation transportation, including validation tests for unmanned driving.



▲ Image of the International collaboration Symposium on Information, Production and Systems

## Institute for Advanced Social Sciences

Type Faculty of Social Sciences  
 Year established 2016  
 Website <https://www.waseda.jp/fsss/iass/>



### Interdisciplinary, international, and application-oriented research site for social sciences

Waseda University's Faculty of Social Sciences launched the Institute for Advanced Social Sciences in 2016 to organize and drive interdisciplinary, international, and application-oriented research in the social sciences and to apply research findings to education. The principle of our research is based on the following three goals.

- "Integration" of the social sciences by recognizing the complexity and diversity of society and studying it as a whole.
- "Interdisciplinarity" of the social sciences by uniting boundaries across fields through the incorporation of the development of the humanities and sciences.
- Application" of the social sciences by generating findings on subjects that require immediate response through emphasis on research activity that directly engages social problems.

This research institute is made up of the Division of Global Issues and the Division of Social Design. These two divisions are linked with the two majors of the Graduate School of Social Sciences with a view to realizing educational collaboration between the two organizations. Its research activities involve conducting research in project research groups that follow the time periods established for each division, and publishing the social science academic journal, Waseda Review of Socio-Science. This research output is disseminated through the website of the Institute.



▲ International symposium commemorating the opening of the Institute for Advanced Social Sciences (April 23, 2016)

## Advanced Research Center for Human Sciences

Type Faculty of Human Sciences  
 Year established 1987  
 Website <https://www.waseda.jp/fhum/archs/>



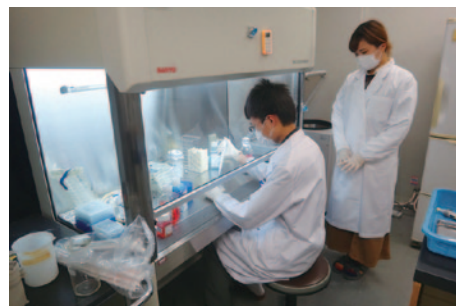
### Comprehensive scientific research on various human problems from the standpoint of human development

This research center was established with the purpose of contributing to healthy, happy human lives and active social lives through harmonization of people, society, and nature as well as orderly advances and scientific, comprehensive research into various issues related to human existence and behavior.

The research center conducts three types of research projects that have been carefully selected as an initiative to realize this aim. It promotes research on a variety of themes with the three project types – planning and preparation projects that assist preparations for acquiring large competitive research funds, large research assistance projects that support more efficient handling of acquired large-scale competitive research funds, and general research projects that freely define issues.

Additionally, it collaborates with research institutions at the university and outside the university, extensively accepts invited researchers, collaborative research, and consignment research, and builds operations to pursue multifaceted research. These activities lead to formation of a community of researchers.

Results from research conducted by this research center should continue to contribute to resolving many difficult issues facing modern society educating and supporting young researchers who are the future and sharing results broadly with society.



▲ Subculture process for tissue cells in a bacteria-free state

## Institute for Sport Sciences

Type Faculty of Sport Sciences  
 Year established 2006  
 Website <https://www.waseda.jp/fsp/rcsports/research/>



### Strengthening society and enhancing people's lives through sports

The Waseda Institute for Sport Sciences was established in September 2006 to promote research into sport in such disciplines as the humanities, pedagogy, business, medicine, kinesiology, and coaching, and to make the results of this research widely available.

The Institute aspires to a high level of research while collaborating closely with the educational and research activities of the Graduate School of Sport Sciences and the undergraduate School of Sport Sciences. The Institute conducts research and disseminates the results, holds research meetings and lecture events, and serves as a liaison for research between faculty members and external bodies. The results of these activities are openly available both inside and outside the university.

The importance of living an active life is steadily increasing as the population ages. There are also growing expectations for the sport sciences to provide scientific support for athletes ahead of the 2020 Tokyo Olympic and Paralympic Games. In these times of change and opportunity, this Institute strives for an even stronger vibrancy to achieve its mission of enhancing people's lives and the general welfare.



▲ Image of electroencephalography in a test room



## Waseda University Institute of Asia-Pacific Studies (WIAPS)

Type Faculty of International Research and Education

Year established 1997

Website <https://www.waseda.jp/gsaps/wiaps/>



### Promotion of interdisciplinary research for various issues in the fastgrowing Asia-Pacific region

The Asia-Pacific region currently accounts for at least 50% of the global economy. While people have become physically more prosperous thanks to economic advances, many issues severely affect living, such as poverty, the environment, and security. These problems no longer stay within individual nations and are international issues in a globalized society with active movement of people, goods, money, and information across borders.

The Waseda University Institute of Asia-Pacific Studies engages in interdisciplinary research from global and regional perspectives to address these issues with dedicated faculty who focus on research on three areas (Area Studies, International Relations, and International Development/Policy Studies). The dedicated faculty create research groups within the center and actively disclose research results to the outside world via the Journal of Asia-Pacific Studies. The Institute also handles research projects with consignment research funds, donations, and supplemental funds from outside the university. It puts emphasis on formation of research networks through collaboration with universities, research entities, and companies located in Japan and other countries. The Institute strives to disseminate research results to other countries by arranging international collaborative research and holding international symposiums. It plays an important role in the promotion of international research activities in the Asia-Pacific region.



▲ 20th Anniversary Symposium "Dynamics of Division and Integration in the Asia-Pacific"



## Center for Data Science

Year established 2017

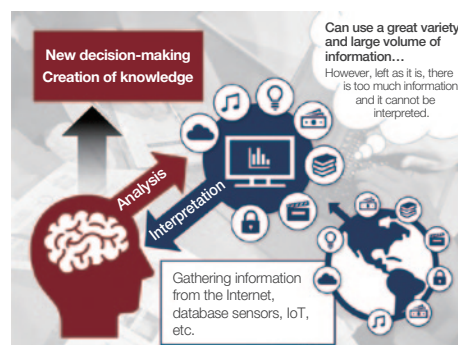
Website <https://www.waseda.jp/inst/cds/en>

### Creating New Knowledge through Integration of Data Science and Academic Expertise

Alongside the rapid development of information processing technology and communications technology, it has become possible to handle a great variety and large volume of data. For this reason, data science is becoming ever more important. Data science is an integrated science discipline that seeks to obtain new knowledge from data and apply it to decision-making, and it has become necessary in all areas of study and research, be it science and engineering or humanities and social sciences. Furthermore, by combining the “theory” with “validation through data” that have been accumulated in the respective specialized fields to date, there are expectations for the emergence of new and unprecedented academic disciplines and research.

This Center maximizes Waseda’s strengths as a private university to provide a platform that aims to fuse the latest data science with knowledge gained in specialized fields in the areas of science and engineering as well as humanities and social sciences. By doing so, it aims to create integrated and new forms of knowledge, nurture human resources who are able to solve problems in a complex and global society, as well as enhance the research capability of the university as a whole. It will also put effort into establishing large-scale networks with universities and corporations in Japan and abroad, and as a hub for advanced research and education models from around the world, work toward spreading practical education and advanced research.

Please visit the website for more details.



▲ Illustration of the Center for Data Science

## Waseda Institute for Advanced Study (WIAS)

Year established 2006

Website <https://www.waseda.jp/inst/wias/>

### Research platform for promising researchers' great leap forward into the world

WIAS was established with the aim of enhancing quality and international profile of the research activities of Waseda University by nurturing promising young researchers. WIAS accepts researchers from across the world, irrespective of nationality or research area. They are provided with good research environment in which they can concentrate on their research activities.

WIAS researchers are working on respective research themes in humanities, social sciences, natural sciences or interdisciplinary areas. WIAS researchers are expected to acquire various competitive research funds, disseminate their research results through papers and presentations at academic conferences, host WIAS monthly workshops and run seminars. WIAS offers various exchange opportunities for researchers such as periodical progress report meeting in WIAS or joint seminars in collaboration with other organizations. Through these activities, researchers can go beyond their specific research area and work with other researchers in more dynamic ways.

They also have chances to engage in educational activities in Waseda University. After working for some years at WIAS, they generally obtain full-time positions at Universities or research institutes.

WIAS also invites distinguished researchers from abroad so that they can interact with faculty and young researchers of Waseda University. WIAS is reinforcing the alliance with institutes for advanced studies based on universities around the world to further enhance the research standards of WIAS as well as that of Waseda University.



▲ WIAS monthly workshop

## Center for Japanese Language

Year established 1988

Website <https://www.waseda.jp/inst/cjl/>

### One of Japan's largest providers of Japanese education, and a place for practicing advanced theories of Japanese language education

The Center for Japanese Language conducts Japanese courses for more than 5,000 international students in the school, and approximately half of the total number of international students in the school are now attending Japanese courses. The Center also operates unique Japanese Language Programs that last for both one year and half a year, and Short-term Japanese Programs that last for three and six weeks. International students from around the world are accepted into these programs. Another feature of the CJL is that it is open to overseas researchers and overseas faculty, not only Waseda's own international students. The CJL also works with the Graduate School of Japanese Applied Linguistics and functions as a place for practicing advanced theories of Japanese language education.

The Center also implements theoretical and practical research projects related to Japanese language education, offers research groups, and conducts various research activities with the aim of enhancing the Japanese language and Japanese language education. Additionally, the Center publishes the Bulletin “Waseda Practical Studies in Japanese Language Education” annually to share its Japanese language education activities inside and outside the university and to contribute the improvement of the language education.



▲ CJL Class scene



## Center for Advanced Biomedical Sciences: (TWIns)

Tokyo Women's Medical University – Waseda University Joint Institution for Advanced Biomedical Sciences

Type Faculty of Science and Engineering

Year established 2008

Website <https://www.waseda.jp/inst/twins/>



### A hub that promotes next-generation collaboration between medicine, and science and engineering, with the aim of realizing advanced medical treatment

Waseda University and Tokyo Women's Medical University have been cooperating in areas such as artificial heart development and biometrics since more than 50 years ago, and have engaged in joint research of medicine, and science and engineering. Furthermore, with the aim of engaging in research in the fields of life science and biomedical engineering systematically in both universities, the Tokyo Women's Medical University – Waseda University Joint Institution for Advanced Biomedical Sciences (TWIns) was established in 2008 as a collaborative facility with Tokyo Women's Medical University, and the two universities established the Center for Advanced Biomedical Sciences at the same time. Faculty members, researchers, clinicians, and students from both universities participate in the research exchange seminar, which has become an established tradition between the universities. Through oral presentations and more than 80 poster presentations, they engage in lively discussions at the seminar.

Health and welfare for humankind is a major theme. It is highly desirable to introduce cutting-edge technology such as nano-systems, image information transmission technology, biomaterials, and AI for the prevention, diagnosis, and treatment of diseases, and to realize advanced technology. However, in order to achieve that, it is vital to deepen and develop fields such as life science and biomedical science through the fusion of medicine and medical treatment with science and engineering. The areas of research that TWIns is engaged in span a wide range of disciplines, including life science, medicine, science and engineering, and biology, making it the ideal environment for generating new academic disciplines. TWIns is a hub that promotes next-generation collaboration between medicine, and science and engineering, with the aim of realizing advanced medical treatment.



▲ Exterior of TWIns

## San Francisco Office / Brussels Office

Type International Affairs Division

Year established 2012 (San Francisco Office)

2016 (Brussels Office)

Website <http://www.waseda.jp/inst/us-office/> (San Francisco Office)

<https://www.waseda.jp/inst/brussels-office/en/> (Brussels Office)

### Overseas Offices Supporting Education and Research

Waseda University concludes agreements with leading academic institutions overseas, and based on these agreements, we develop student and researcher exchange programs with the support of our fifteen overseas offices. In particular, our offices in North America and Europe carry out activities that facilitate the development of international research collaborations with our overseas partners.

The San Francisco Office (opened in 2012) undertakes a wide range of activities, including supporting the University's educational and research activities in North America as well as developing Waseda's network of contacts. Together with the Center for Research Strategy and the Research Promotion Division, the San Francisco Office works to build and strengthen networks between Waseda and research universities and institutions in the US while also supporting Waseda students and researchers in the area for research or study purposes.

The Waseda Brussels Office (opened in 2016) was created to improve Waseda's international recognition in Europe as well as to promote international joint research. As the de facto capital of the European Union, Brussels plays a central role in networking and information sharing across numerous fields, including in education and research, and this role will continue to grow in importance in the future. Through the Brussels Office, Waseda is able to build and strengthen our relationships with European partners in industry, academia and government; and through research workshops and events like the EU-Japan Conference that provide a venue to present and discuss topics of mutual interest and concern, the Brussels Office encourages European institutions to seek out Waseda as a partner for international collaboration.



▲ Exterior of the building where the San Francisco office is located



## The Tsubouchi Memorial Theatre Museum

Year established 1928

Website <https://www.waseda.jp/enpaku/>



### The Only Comprehensive Museum in Asia Dedicated to Theater — A Symbol of “Theater-Oriented Culture in Waseda”

The Tsubouchi Memorial Theatre Museum is a museum dedicated to theater and film, holding collections of materials related to theater and film from Japan and countries around the world. Its collections, numbering more than a million items, are open to the public through exhibitions, publications including the annual bulletin called *enpaku book*, and databases.

The Theatre Museum began building a digital archive in the early days of digital era. “Digital Archives Collection,” its comprehensive research database for theater and film, allows the public access to the information of museum collections, widely ranging from ukiyo-e prints, scripts and programs of kabuki and *kyogen* plays, stage photographs, and to materials of contemporary theatrical performances.

Of these, the collection of ukiyo-e prints of kabuki actors is the largest in the world. Including the project of converting items such as Noh masks into three-dimensional digital images, the Theatre Museum has been committing to structuring archives for future generations.

Furthermore, since FY2009, the Museum’s Collaborative Research Center for Theater and Film Arts has also been accredited by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) as a Joint Usage/Research Center, carrying out a number of themed and public research projects. Successfully leading research in theater and film, it has been selected as a MEXT project for the strengthening of functions from FY2016–FY2018. It has also collaborated with outstanding research institutes in the field of theater both in Japan and abroad to promote international joint research, making possible activities such as international symposiums.

Lastly, the Theatre Museum works closely with neighboring communities to promote regional culture through its contribution to the popularization of theater and film culture. The museum’s library too provides the public free access to rare collections of books, scenarios, and scripts that benefitted visitors not only for academic research but in many other areas.



▲ Front of the Museum is modeled on the historic Elizabethan “Fortune Playhouse” built in the 16th century; the building itself is a theater material

## Aizu Museum

Year established 1998

Website <https://www.waseda.jp/culture/aizu-museum/>



### Open university museum with valuable cultural materials

Yaichi Aizu (1881–1956), who was not only an Eastern art history researcher but also a poet and writer, stressed the importance of direct contact with works in art history research and education and referred to this as “practical learning.” He collected just over 4,000 items, including Chinese ceramics, mirrors, and *gasen*, purchased with his own funds for use in student education and research. These items form the Yaichi Aizu collection and are an important component of the Museum’s collection. The Museum also has archeological materials from excavations conducted prior to the war, donated modern art works, and materials on the Aizu people from the Yoshio Tosabayashi collection. Its materials are unique and valuable cultural assets of Waseda University. Since opening the Museum in 1998, it has received various donations from friends of the university, including the Shigenori Tomioka collection, the Uchiyama collection, the Kantaro Nobuhara collection, the Hattori collection, the Ono collection, and the Kosei Ando collection. The Museum’s collection has expanded to about 20,000 items. The Museum items are permanently exhibited. The Museum aims to be a site for use in research and education at the university and from outside the university and to offer opportunities to have contact with the university’s knowledge-filled historical items.



▲ Exterior of the No.2 Building Yaichi Aizu Memorial Museum





# Waseda University Research Ethics Measures

Waseda University has put in place relevant rules and implemented relevant measures to ensure that all researchers and other personnel who are involved in academic research recognize the great influence that research activities have on society, and carry out research activities faithfully in accordance with their own good conscience.

## Establishment of Rules and Other Provisions Related to Academic Research Ethics

Waseda University has established the Waseda University Academic Research Ethics Charter to articulate the desired ethical behavior and to set out a code of conduct for all concerned with research activities at the University.

Waseda University has created its “Guidelines Regarding Academic Research Ethics” to serve as a guideline for compliance with the Academic Research Ethics Charter, and to articulate in detail the responsibilities of the university and its researchers.

Waseda University, in its “Rules for Preventive Measures against Research Misconduct and the Investigation Procedures”, stipulates the university’s stance on the prevention of misconduct regarding research activities and misconduct regarding the handling of research funds, and on the treatment of cases of misconduct.

### Charter/Code of Conduct

#### Waseda University Academic Research Ethics Charter

Ethical behavior and code of conduct for those who are concerned with academic research activities

#### Guidelines Regarding Academic Research Ethics

Concrete guidelines for researchers’ duties and appropriate conduct regarding research activities

#### Rules for Preventive Measures against Research Misconduct and the Investigation Procedures

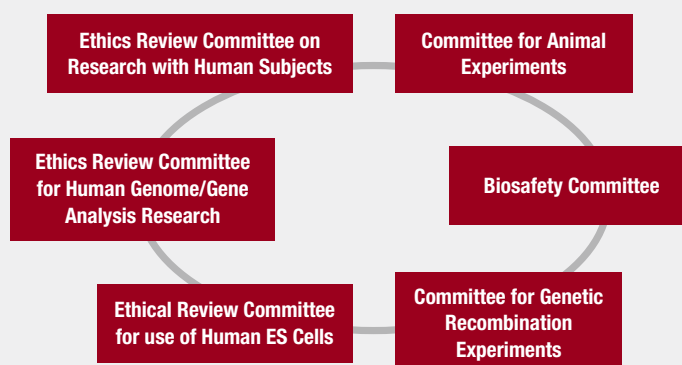
Rules for the prevention of misconduct of research and research funds and measures against improper activities

## The Academic Research Ethical Review Committee

Waseda University has established the Academic Research Ethical Review Committee, based on Waseda’s Rules for Preventive Measures against Research Misconduct and the Investigation Procedures. The Committee works to prevent misconduct and takes action in response to cases of misconduct.

## Review System for Research and Experiments

Waseda University has established a system for the review of ethics related to research plans, and of experiment plans, so as to protect research subjects, and to set rules to ensure fairness and reliability in research.



## Conflict of Interest Management

Waseda University has established its “Regulations for Conflict of Interest Management Regarding Public Research Funds” as well as the Conflict of Interest Management Committee pursuant to those regulations. Conflict of Interest management is carried out by the Committee.

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