



大阪大学
OSAKA UNIVERSITY

OSAKA UNIVERSITY

PROSPECTUS 2016

Osaka University Vision 2021: Aspirations for the next six years

Osaka University was the sixth imperial university in Japan, founded in 1931 with the strong support of the citizens, businesses and governmental leaders of Osaka. Our educational heritage reaches back to two academies of Edo period Osaka, known as Kaitokudo and Tekijuku. To this day we carry on the academic mission of these schools, striving to preserve their standard of openness and innovation. In October of 2007, Osaka University and Osaka University of Foreign Studies merged, continuing our development as one of the most prominent comprehensive research universities in the nation.

In preparation for our change in status to a national university corporation, Osaka University published its Osaka University Charter in 2003. The Charter asserts the importance of open dialogue and contributions to society. With these values in mind, I am proud to present our aspirations for the future of Osaka University in the form of our Osaka University Vision 2021, a vision unified by openness. It is organized around five pillars: Open Education, Open Research, Open Innovation, Open Community and Open Governance.

The role of national universities in Japan is changing at an unprecedented rate. The pressures of globalization, changing needs for education in modern society, expectations for our collaboration with industry – these and other realities require that we expand, adapt, and evolve. Above all, our mission is to innovate in education and research and in so doing provide for the needs of society, developing still more spaces for knowledge creation in close collaboration with citizens, government and industry. We aim to compose, orchestrate and harmonize knowledge, integrating innovations from all disciplines and all sectors of society, mobilizing our students, faculty and staff. Through such “kyoso (orchestration)” and “kyoso (co-creation)” of knowledge, Osaka University realizes the full potential of our synergies.

The principle of immutability and fluidity applies not only to our traditional culture but also to the mission and the role of a national university. There are fundamentals which must always remain the same, while some aspects of national universities must change. We must flexibly meet the needs of society, while staunchly upholding our academic tradition.

Driven by our vision and inspired by our past, I will strive to bring about an even greater future for Osaka University during my six-year term.


Shojiro NISHIO
President

Dr. Shojiro NISHIO
President

Dr. Shojiro Nishio became the 18th President of Osaka University in August 2015. His area of expertise is data engineering and multimedia systems. He received his B.E., M.E., and Ph.D. degrees, all in applied mathematics and physics, from Kyoto University. After his time at Kyoto University and the University of Waterloo in Canada, he became Associate Professor at the School of Engineering Science, Osaka University in 1988, and Professor at the School of Engineering, Osaka University in 1992. He subsequently served various faculty-level and headquarters positions at Osaka University including the Founding Director of the Cybermedia Center (April 2000 to August 2003), the Dean of Graduate School of Information Science and Technology (August 2003 to August 2007), and Executive Vice President (August 2007 to August 2011).

President Nishio has also served in various national policy advisory boards and committees, acting as the Program Director in the Area of Information and Networking for the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan from April 2001 to March 2008. Dr. Nishio has received numerous awards during his research career, including the Medal with Purple Ribbon from the Emperor of Japan in 2011.





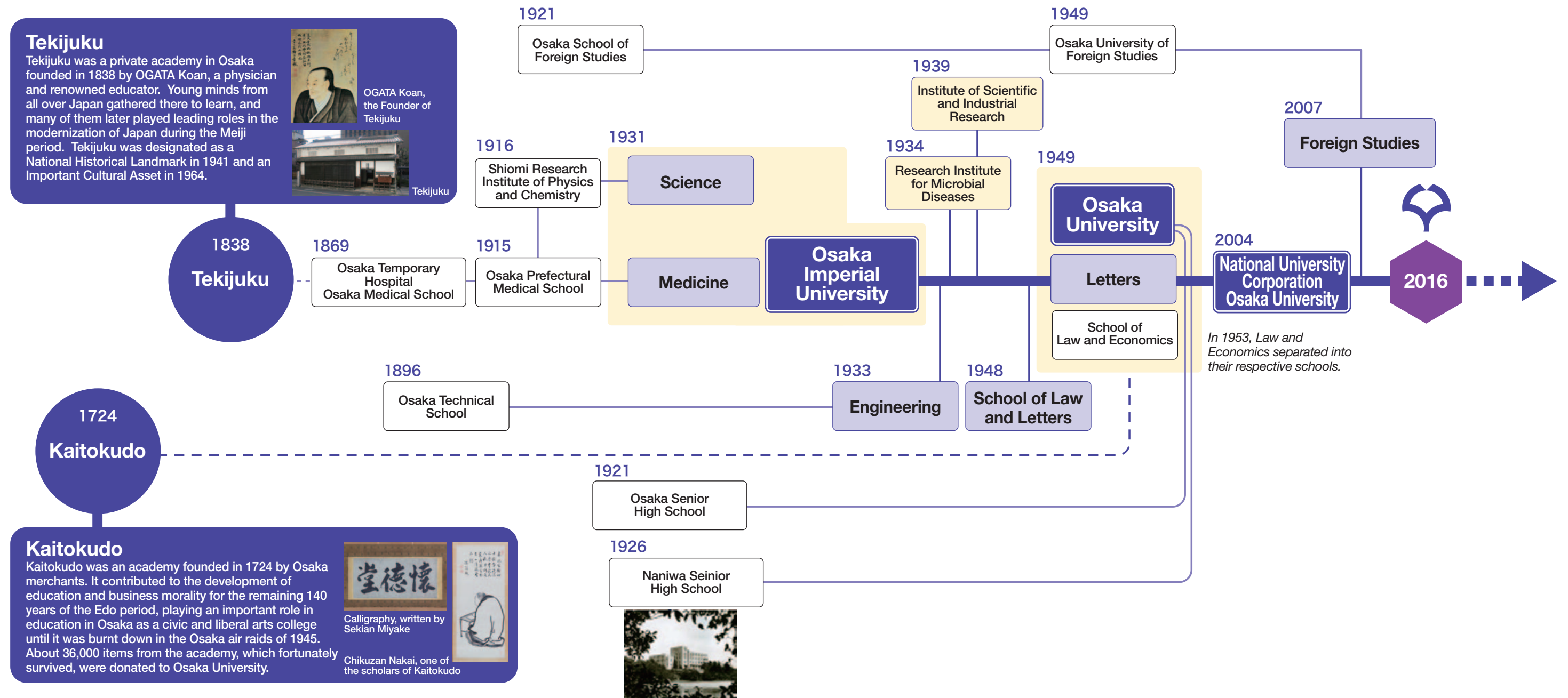
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The Past and Present of Osaka University



Osaka University's roots can be traced to Kaitokudo and Tekijuku, two academies that delivered front-line scholarship during the Edo period (1603-1867). This tradition is inherent in today's Osaka University which continues to achieve cutting-edge research results worthy of international recognition and provide society with distinguished researchers and professionals.



Information and History of Osaka

The Word ‘Osaka’

The geographical range currently indicated by the term 'Osaka' varies according to the context in which the term is used. The Tokugawa shogun that ruled Japan during the Edo period (1603—1867) clearly referred to Osaka as the administrative district that the Edo government had set under the direct control of the city. The administrative district was dominated by Osaka shogunate magistrates, set apart from the surrounding rural areas and was much smaller than present day Osaka. Nowadays, Umeda and Namba are densely populated areas located in downtown Osaka but during the Edo period neither Umeda nor Namba was included within Osaka itself rather considered rural land adjacent to it on both sides. To put it simply, Osaka in the Edo period was considered an area sandwiched in between; it was this area that was exclusively referred to as Osaka. Osaka began expanding its borders from 1868 onwards, the start of the Meiji era.

Osaka in the Edo Period

Toyotomi Hideyoshi (1537—1598) finally put an end to civil war, which had lasted more than a century in Japan. He achieved unification in 1590 and this laid the foundations for the development of Osaka. As well as the construction of Osaka Castle, Hideyoshi attracted merchants and traders through urban development. After unification throughout Japan, the House of Lords was built in Osaka and it was decided that all lords should pay homage to Hideyoshi. Osaka subsequently thrived and became the political, economic and military center of Japan.

Toyotomi Hideyori (1593—1615) followed in his father's footsteps and became the head of Osaka Castle after Hideyoshi's death in 1598. In 1615, however, Hideyori would be overthrown by the first shogun Tokugawa Ieyasu (1542—1616) who had a firm grip on hegemony after winning the battle of Sekigahara in 1600 and the opening of the shogunate in Edo (modern day Tokyo) in 1603. As a result of this war, Osaka was destroyed and areas burnt to the ground.

Following this, post-war reconstruction was carried out and Osaka fell under the direct control of the Edo shogunate from 1619. In addition to the rebuilding of Osaka Castle, the shogunate focused on urban development and the area prospered greatly during the Edo period. In the 18th century, it was a huge city with a population of 400,000 second only to Edo where the shogunate was located.

Osaka became a distribution center furnishing goods and supplies to the rest of Japan. Rice instead of land tax was collected from each of the lords' village territories along with other special products and sent to Osaka



Osaka in the late Edo period.
"Map of Osaka's National Treasure (revised and enlarged)."『改正増補国宝大阪全図』
1863, OSAKA UNIVERSITY LIBRARY

The History and Spirit of Osaka



① View of Temma Bridge

② Sailing of Cotton-Loading Boats

③ The Mitsui Draper's Shop

to be sold. To this end, the lords placed their goods in their own warehouse-residences in the city called 'kurayashiki'.

Land Characteristics

Osaka in the Edo period comprised of Osaka Castle, Osaka shogunate magistrates, shogunate institutions and the kurayashiki, which were owned by the various different feudal lords. There was a presence of samurai in Osaka but their percentage compared to the total population of Osaka was negligible and most of the townspeople were actually engaged in commerce and industry. Due to the huge political shogunate organization in Edo, there was always a constant number of samurai present there. The 'sankin-kotai' system (lit. 'alternate attendance', a daimyo's alternate-year residence in Edo) meant there was also an influx of samurai to the area at this time and this became a major difference between the two regions. Furthermore, since Osaka had become the center of the national economy, the local merchants were able to influence the trend of prices and distribution nationwide.

These characteristics brought a sense of freedom to Osaka, a free spirit that did not fear the authority of officers or samurai. In addition, many private schools were opened and scholarship developed tremendously, but the ethos of this Osaka was also clearly reflected in its academic content. 'Kaitokudo' founded in Osaka thanks to the contributions of leading merchants in 1724, together with 'Tekijuku', are said to be the origins of Osaka University. Nakai Chikuzan (1730—1804), the principal of Kaitokudo, severely criticizes the samurai who displayed no signs of shame with regard to not repaying this debt owed to the merchants.

Once we leave the Edo period and enter the world of the Meiji era, any indication of the existence of samurai and *chonin* (merchants and traders) disappears. As mentioned earlier, at this time, the geographic region of Osaka itself expands. Nonetheless, even with era change, the ethos of Osaka nurtured during the Edo period is present and, in fact, still lives on today.

(Michihito MURATA, Professor, Graduate School of Letters)

- ① People toing and froing across the Temma Bridge which spans the River Yodo; Osaka Castle visible in the background.
Kunikazu, "View of Temma Bridge"『天満ばし風景』
THE OSAKA PREFECTURAL NAKANOSHIMA LIBRARY
- ② Large Higaki ships loaded with cotton (top right) headed for Edo departing from the estuary of the Yodo River.
Yoshitoyo, "Sailing of Cotton-Loading Boats"『菱垣新綿番船川口出帆之図』,
THE OSAKA PREFECTURAL NAKANOSHIMA LIBRARY
- ③ Mitsui Echigoya dry-goods store, predecessor of the modern day Mitsukoshi.
Kunikazu, "The Mitsui Draper's Shop"『三井呉服店』,
THE OSAKA PREFECTURAL NAKANOSHIMA LIBRARY

Osaka University Vision 2021

We believe that the mission of the university is to create a better future through the cultivation of comprehensive knowledge, not only for the advancement of science and technology, but also for a profound understanding of humankind and society. Aware of our social responsibility and by building on our inherited historical legacy, Osaka University hereby presents its “Osaka University Vision 2021.”

This vision is set to realize the principles of the Osaka University Charter, the proclamation issued when we became a national university corporation in 2004. While affirming our fundamental commitment to outstanding research and education, the vision also calls for openness – internally among departments in the university, and externally through open dialogue and interaction with society. This openness will be the unifying principle of our improvements in the next six years leading to our 90th anniversary in 2021.

Osaka University's quest for openness dates back to the civic-mindedness of two academies of the Edo period, known as Kaitokudo and Tekijuku. Both institutions were established with the support of local citizens and thrived in the vibrant and liberal atmosphere of the city. The university has embraced the spirit, diversity and aspirations of these schools and has nurtured students who strive to achieve excellence in their sincere yet humble search for the truth. The university's motto of “Live locally, grow globally” manifests our inherited commitment to always contribute to society.

Contemporary society is faced with global-scale challenges — the deterioration of the environment, the depletion of natural resources, ethnic and religious strife, just to name a few examples. Rocked by a burgeoning wave of globalization, we humans seem to have lost tolerance and open-mindedness, having wandered from the path to peace. In these challenging times, the mission of a university is to create comprehensive knowledge, that is, knowledge to advance science and technology to ensure sustainability, as well as to cultivate wisdom to comprehend the state of humankind and society. We believe such comprehensive knowledge lays the groundwork for a better future.

To maximize the full potential of the comprehensive knowledge we create, the university must overcome internal and external barriers to openness. We aim to compose, orchestrate and harmonize knowledge, integrating innovations from all disciplines and all sectors of society, mobilizing our students, faculty and staff. Through such “kyoso (orchestration)” and “kyoso (co-creation)” of knowledge, Osaka University realizes the full potential of our synergies. Open collaboration will in turn bring new ideas that strengthen our university community. It is through this openness that we will become a world-leading comprehensive research university. This brings us to the five themes of our vision: Open Education, Open Research, Open Innovation, Open Community and Open Governance.



I. Open Education

Our vision is to:

Train students to search for the truth and explore knowledge beyond university campuses in the larger society.

Integrate resources in the university with those in civil society, government and industry to discover new knowledge relevant and meaningful to society.

1. Provide undergraduate education to train skills applicable to the needs of society.
2. Provide graduate education to train the ability to create new value for society.
3. Strengthen global dimensions of education.
4. Reform entrance examinations to admit students with diverse backgrounds.
5. Promote diversity in learning.

II. Open Research

Our vision is to:

Support Open Research, by respecting the freedom and encouraging the passion of individual researchers.

Establish academic partnerships across the world so as to cultivate new frontiers of knowledge.

1. Strengthen the foundations of academic research and globalization.
2. Create an environment free from misuse and misconduct.
3. Become a hub for world-class research.
4. Cultivate new fields of research through datability multidisciplinary collaboration.
5. Provide support for talented young researchers to offer better future career prospects.
6. Promote distinct collaborative research and joint use as a center for advanced knowledge.

III. Open Innovation

Our vision is to:

Initiate a fundamental shift from “industry-university collaboration” to “industry-university co-creation.” Discover new themes and tasks in basic science by assessing emerging social demands.

Undertake Open Innovation through which to create new social values.

1. Encourage Osaka University-style comprehensive co-creation with industry.
2. Drive further commercialization of translational

research by leveraging medical, dental and pharmacological networks in Osaka.

3. Create a center for the development of human resources through co-creation with industry.
4. Bring back technology to the center of society through strategic investment.

IV. Open Community

Our vision is to:

Help solve local and global issues and contribute to optimal social development through our strength in science, culture, art and medicine.

Create an Open Community, a social space where diverse knowledge and people meet and interact.

1. Create a regional center for science, culture and the arts through university-community collaboration.
2. Further improve University Hospitals to contribute to local and global health care.
3. Compose, orchestrate and harmonize knowledge using an expanded global network.
4. Create an open, sustainable campus.
5. Create an intergenerational network by developing new public relations initiatives.

V. Open Governance

Our vision is to:

Exceed the expectations of society through continual reform and improvement by maximizing the agency of every member of the university.

Implement Open Governance, a solid and transparent university management system that balances leadership and consensus.

1. Ensure transparency in university governance by balancing leadership and consensus.
2. Promote gender equity for all members to flourish.
3. Hire, train and retain talented individuals and specialists to support university management.
4. Create a sound fiscal system based on our medium and long-term plan.
5. Increase independent sources of income to ensure healthy and stable management.
6. Create a safe, comfortable and sustainable environment for education and research.

This provisional, abridged version is based on the original in Japanese.

Outstanding Achievements and Programs

Immunology at Osaka University

Jun SAKANOU

Associate Professor, Immunology Frontier Research Center

www.ifrec.osaka-u.ac.jp/index-e.php

Shimon Sakaguchi and Regulatory T Cells

Scientific papers with high citation numbers, meaning they have been cited by other papers many times, are considered to demonstrate that the authors have yielded significant results. Papers authored by **Shimon Sakaguchi**, professor at the Immunology Frontier Research Center at Osaka University, have been increasingly cited since the turn of the century. Sakaguchi identified regulatory T cells (Treg) as the “immune cells that suppress immune reactions”. Sakaguchi has greatly contributed to the understanding of Treg and its roles in controlling a variety of physiological and pathological immune responses. His discoveries on Treg and their roles were called “the final breakthrough in immunology”.

Thomson Reuters choose Sakaguchi as one of the **2015 Thomson Reuters Citation Laureates** for “Advances in the understanding of T cells and their function in autoimmune disease, allergy, inflammation and other processes”. Since this award is considered to forecast Nobel Prize Winners, Sakaguchi has gained much public attention.

Sakaguchi was also awarded the **Canada Gairdner International Award 2015**, which is recognized as one of the most prestigious awards in biomedical sciences. The Gairdner Foundation commented, “Prof. Sakaguchi is awarded for his discovery of regulatory T cells, characterization of their role in immunity and application to the treatment of autoimmune diseases and cancer.” At the reception hosted by the Ambassador of Canada to Japan, Sakaguchi received warm congratulatory messages from many participants including Prof. Satoshi Omura (Kitasato University), a previous year's Gairdner awardee. It is very exciting that Prof. Omura was awarded the Nobel Prize in Medicine 2015 soon after the reception.

Now, regulatory T cells appear in science text books for high school students. Osaka University has bestowed the title of Distinguished Professor on Sakaguchi for his leading role in the university.

Four Immunologists of Osaka University

Osaka is known as one of the international hubs for immunology. The following four scientists are not to be forgotten when talking about today's immunology research in Osaka University.



Shimon Sakaguchi at the ceremony for the Canada Gairdner International Award 2015 (www.gairdner.org)



Shimon Sakaguchi(C) and Satoshi Omura(R) at the reception hosted by the Ambassador of Canada



Tadamitsu Kishimoto (L), Shizuo Akira (C), and Shigekazu Nagata (R) at the international conference organized by IFReC

Tadamitsu Kishimoto (Osaka University President, 1997-2003) studied at the laboratory of Yuichi Yamamura, a pioneer in microbiology and cancer immunology in Japan. Interleukin-6, discovered at Kishimoto's lab in 1986 has become a fascinating research subject around the world, because it plays important roles in pathogenesis and aggravation of various autoimmune diseases.

Shigekazu Nagata who joined the members of IFReC in 2014 is a molecular biologist, well known for researches on apoptosis, the process of programmed cell death.

Shizuo Akira has made ground-breaking discoveries in the field of innate host defense mechanisms. Akira is a recipient of the Canada Gairdner International Award (2011) prior to Shimon Sakaguchi.

The above three scientists Kishimoto, Akira, Nagata, and **Shimon Sakaguchi** have been elected as **Foreign Associates of the National Academy of Sciences**. Partly through their achievements, Osaka University was ranked among the world's top institutes for the “Citations per Paper ranking” in the immunology field (Essential Science Indicators™; amongst institutes that produced more than 500 papers between 2003 and 2013).

Immunology Frontier Research Center

The **Immunology Frontier Research Center (IFReC)** at Osaka University, directed by Shizuo Akira, was selected by the Japanese Ministry of Education, Culture, Sports, Science, and Technology as one of the nation's nine exclusive World Premier International (WPI) Research Centers.

As well as the four mentioned above, there are diverse researchers enrolled at IFReC. They are studying a wide variety of research fields besides autoimmune diseases including malaria infection, osteoporosis, metabolic syndrome et cetera, incorporating the latest technologies such as Laser microscopes, MRI, and computer simulation for their studies.

This will lead to new and more efficient development strategies for vaccines and immune therapies when combating infectious diseases, cancers and autoimmune diseases.

IFReC is expected to grow into a new leading institute of immunology and biosciences in Japan.



IFReC Research Building where the top immunologists congregate

CONSTRUCTIVE DEVELOPMENTAL SCIENCE BASED ON UNDERSTANDING THE PROCESS FROM NEURO-DYNAMICS TO SOCIAL INTERACTION

Minoru ASADA

Professor, Graduate School of Engineering

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Purpose and background of the research

How microscopic neural activity is reflected in human behaviors is a big mystery shared by many different disciplines. Medical science and neuroscience have tried to explain the microscopic structure inside the brain but have not focused much on the macroscopic structure of social interaction. Contrarily, cognitive science and developmental psychology mainly observe human behaviors and therefore it is difficult to understand the internal mechanism. We have been advocating Cognitive Developmental Robotics (CDR), which aims to provide new understanding about how humans' higher cognitive functions develop by means of synthetic approaches that developmentally construct cognitive functions.

In our current project entitled "Constructive Developmental Science Based on Understanding the Process from Neuro-Dynamics to Social Interaction" (JSPS 24000012), we focus on one of the most fundamental issues: the development of self/other cognition along the pathway of empathy development.

Development of artificial empathy and self/other identification

Figure 1 shows an overview of the development of artificial empathy (top) along the developmental trajectory of self-other cognition (bottom). At the early stage, an entrainment system (bottom left) is the most fundamental mechanism for the so-called "ecological self" to emerge (middle left) through interaction with the environment. Next, the infant interacts with its caregiver, and self/other identification starts to work through the mirror neuron system (MNS), which helps the infant understand the actions and intentions of others. The "interpersonal self" (middle center) is established by adding agency and inhibition sub-mechanisms to the fundamental entrainment system. Finally, the "social self" (middle right) is established, supported by more active control.

Neural Dynamics: the most fundamental form of the system

In order to understand the interactions between the body, brain and environment that generate versatile behaviors, we need to analyze the relationship between the emerged behaviors and the network structures of the neural system of the brain. We conducted a physical simulation using a snake-like robot with a nonlinear oscillator network and extracted the network structure based on transfer

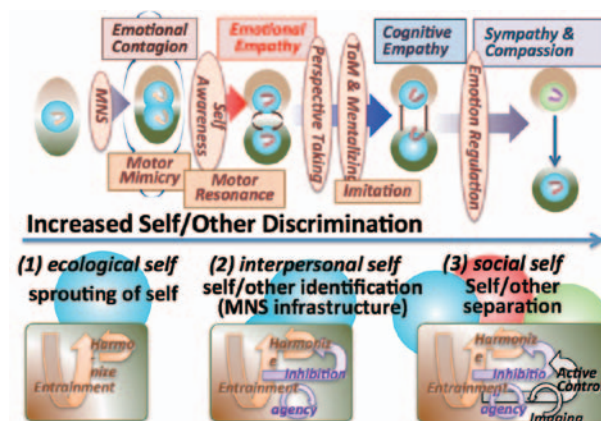


Figure 1. An overview of the development of artificial empathy

entropy for each different movement. Two kinds of network structures were found depending on the behavior (stable or unstable). We call them causality networks compared to the wired network, which is physically fixed. The (un) stable motion is generated by (globally) locally connected (few) several sub-networks consisting of a (more) less complex network through (strong) weak interaction with the environment. Figure 2 shows these two causality networks, which are dynamically transiting each other (left: stable, right: unstable). One speculation is that the unstable and stable states may correspond to the phenomena of artificial consciousness and unconsciousness, respectively, from the perspective of integrated information theory.

Imaging studies on social interaction

Social interaction is supposed to seriously affect child development, and simultaneous multisubject recording is expected to address the issue of how multiple brains interact with each other. This technique is called

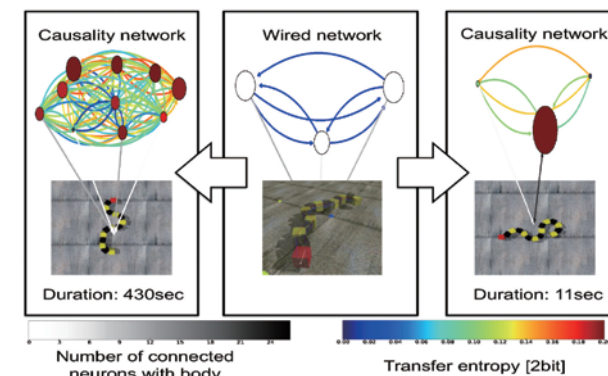


Figure 2. Two causality networks dynamically transiting each other

hyperscanning. We built the first hyperscanning system to examine brain-to-brain interactions between a mother and her child using two magnetoencephalography (MEG) scanners in collaboration with Kanazawa University and Yokogawa Electric Corporation. Figure 3 left shows the hyperscanning-MEG system equipped with video projection devices. Currently we are examining brain activities during their interaction, such as face-to-face communication (Figure 3 right).

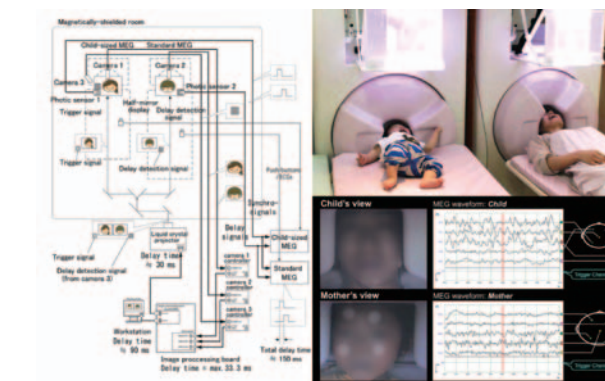


Figure 3. The hyperscanning MEG system and preliminary experiment

Robots could be useful tools to study humans' behavior during interactions (see section entitled "Robot platforms for human-robot interaction"). A typical issue is a leader-follower problem between two agents, that is, who is a leader and who is a follower?

We experimented with a drumming robot to study human-robot rhythmic interaction by asking subjects to drum alternatively with it. Under certain conditions, human subjects believed that they were leading the drum robot, but actually the robot was just controlled by the fixed program (no interaction). Preliminary results from fMRI scanning indicated that these subjects activated social brain regions according to this illusion of social interaction. We are currently investigating how these social interactions may affect their sympathetic concern.

Modeling studies on social interactions

MNS is a group of neurons that activate both when people are executing an action and when they are observing the same action produced by other individuals. Such

a "mirroring" function enables us to better understand and anticipate the goal of others' actions and to imitate them. We develop neural models by which the mirror neuron system emerges through sensorimotor learning accompanied with perceptual development (Figure 4 left).

Infants show prosocial behaviors even without expected rewards. We propose a computational model for the emergence of prosocial behaviors. A robot executes a predicted action in order to minimize a prediction error, which is caused by a failure in others' actions. This results in a prosocial behavior although the robot does not have such an intention (Figure 4 right).



Figure 4. Cognitive development based on predictive learning

The above studies are based on a theory of cognitive development we proposed focusing on predictive learning of sensorimotor information. Our robot experiments demonstrate that various cognitive functions can be acquired through sensorimotor predictive learning, whereas traditional studies have modeled them independently.

Robot platforms for human-robot interaction

Facial and gestural expressions are an indispensable part of artificial empathy. We need realistic research platforms to enable the realization of emotional interaction with caregivers. Figure 5 shows Affetto, a robot we have been developing as a research platform with the realistic appearance of a 1- to 2-year-old child. The pictures from the left to the right indicate facial expressions of the first generation as well as physical interaction and internal structure of the upper torso of the second generation. The internal structure was redesigned so that Affetto can absorb physical force both inside (protection) and outside (avoidance of injuring humans). The fourth figure from the left shows a CAD image of the upper body: divisions of mechanisms and approximate sizes of the third (current) generation. The final whole body with two legs is shown in the rightmost picture.

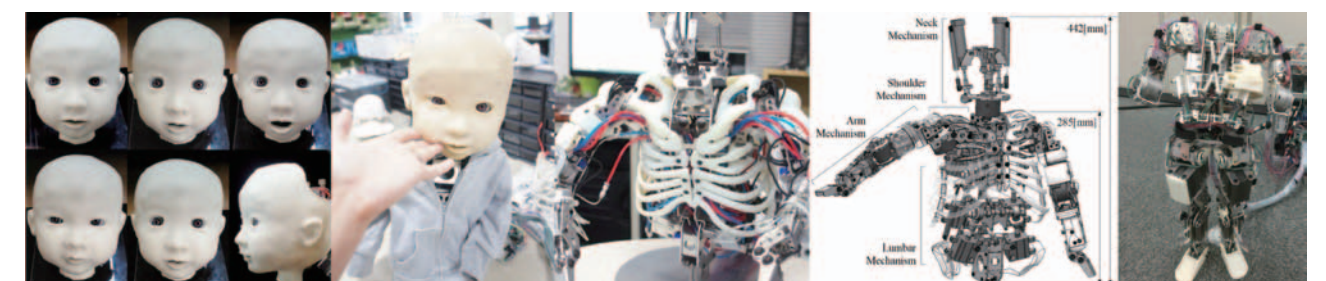


Figure 5. Affetto in three generations: facial expressions and physical interaction, the internal structure of upper torso and a whole body with two legs

Division of Photon Science and Technology

Ryosuke KODAMA

Division Director Professor

www.photon.osaka-u.ac.jp/

Photon science and technology in the University

Photon science and technology provide innovative approaches in broad range of the fields of basic science to industry and medicine. In recent years, there have been significant advances in the development of photonics such as nano-photonics, power photonics and plasma photonics and optics including x-ray and beam control and also in the understandings of the nature of light. Osaka University is among the most active on the photon science and technology including quantum beam technology in the world. More than 100 research laboratories or groups in the graduate schools and research institutes concern the photon science and technology as shown in Table 1. Some of them are intensively developing world-class technologies on nano-photonics, power photonics, plasma photonics, x-ray optics and beam optics and some of them use the technologies for a variety of applications in the fields of High energy physics, Space and Astrophysics, Quantum physics, Solid state physics, Plasma physics, Geophysics, Planetary physics, High pressured physics and chemistry, Photo chemistry, Catalyst Chemistry, Quantum optics, High energy density science, Material science Information science and Life science.

- Graduate School of Science - Graduate School of Engineering Science - Graduate School of Engineering - Graduate School of Frontier Biosciences - Graduate School of Medicine - Graduate School of Dentistry - Institute for Academic Initiatives	- Institute of Scientific and Industrial Research - Joining and Welding Research Institute - Institute for Protein Research - Institute of Laser Engineering - Research Center for Nuclear Physics - Research Center for Solar Energy Chemistry - Photonics Center - Photon Pioneers Center
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Table 1.
Graduate schools and research institutes concern the division of the photon science and technology.

Network projects on photon science and technology

Based on the advantage and potential of Osaka University, a variety of competitive network projects are being energetically pursuing in diverse fields related to photon science and technology as a core institute of the network projects: e.g.,

- Academic Network Projects supported by Ministry of Education, Culture, Sports, Science and Technology, JAPAN (MEXT)
- Joint Usage/Research Centers project (Institute of Protein Research, Joining and Welding Research

Institute, Research Center for Nuclear Physics, Institute of Laser Engineering)

- Photon Frontier Network in Japan “Consortium for Photon Science and Technology for the west side of Japan” (Photon Pioneers Center)
- XFEL Priority Strategic Program “Exploring Novel Material under Extreme States with XFEL and High Power Laser” (Photon Pioneers Center)
- Grant-in-Aid for Scientific Research on Innovative Area “Photon Synergetic” (GSES)
- International Network Projects supported by Japan Society for the Promotion of Science (JSPS)
- Core-to Core program “International Alliance for Material Science in Extreme States with High Power Laser and XFEL” (Photon Pioneers Center)
- Asian core program “HED science Using intense Laser photons” (Photon Pioneers Center)
- Asian core program “Advanced Nano Photonics Research and Education Center in Asia” (Photonics Center)
- Industry-Academic Projects supported by Ministry of Economy, Trade and Industry, MEXT, Cabinet Office, Government of Japan, NEDO,
- Photonics Advanced Research Center at the Photonics Center Project by MEXT (Photonics Center)
- Photon Beam Platform project by MEXT (Institute of Laser Engineering)
- Light Eco-life Project by METI (Photon Pioneers Center)
- Impulsing Paradigm Change through Disruptive Technologies (ImPACT) Program “Ubiquitous Power Laser - Laser Plasma Accelerator Platform” (Photonics Center)

Harima center for Photon Science (HAPS) in the RIKEN SPring-8 Campus

Harima center for Photon Science (HAPS), Osaka University has been established on the RIKEN SPring-8 campus to promote collaboration and cooperation with RIKEN in the interdisciplinary fields’ science from biology to nuclear physics as well as high energy density science. The RIKEN SPring-8 Center boasts the world-renowned Synchrotron Radiation and X-ray Free Electron Laser (XFEL), i.e. Spring-8/SACLA facilities. Osaka University has three dedicated beam lines, which are conducted by Institute for Protein Research and Research Center for Nuclear Physics at SPring-8, as well as its own power laser facility by Photon Pioneers Center at SACLA. The

Graduate School of Engineering in the University also develops and provides well-established high quality x-ray optics or “Osaka Mirror” to the Spring-8/SACLA facilities. We have a cumulative total of 3,000 people associated with Osaka University using the facility every year. It is against this background that we are establishing the Harima Center for Photon Science, Osaka University in the RIKEN SPring-8 Campus as shown in Fig 1. We will combine the world-leading facilities of the research center and Osaka University’s photon beam science and technology and use these to gather together and combine internationally competitive people, technologies and knowledge, in order to nurture a place of open innovation and create the seeds for future academic and industrial advancement.

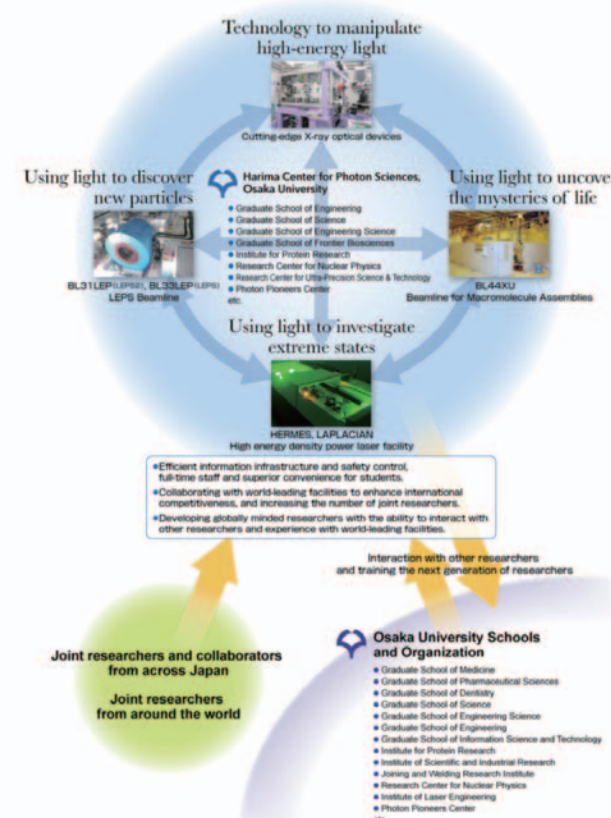


Figure 1
Harima Center for Photon Science, Osaka University in the RIKEN SPring-8 Campus

Allied Triangle on Photon and Beam Science in 100km

Osaka University has a lot of collaborations on photon science and technology with Japan Atomic Energy Agency (JAEA), Kansai Photon Science Institute (KPSI) and RIKEN SPring-8 center as shown in the network projects. Collaborations with the RIKEN SPring-8 Center cover a large field of research on life science, material science, high energy density science and high energy physics including high power laser and accelerator technologies. Facilities on high power laser and accelerator sciences in the University also have a lot of collaborations with the JAEA-KPSI. These facilities have 3 of the most powerful lasers including the XFEL in Japan and are located in the 100km triangle area in the west side of Japan or Kansai area. Based on this unique and advantageous position, Osaka University is now promoting the alliance consisted of these three facilities on photon science and technology as shown in Fig. 2.

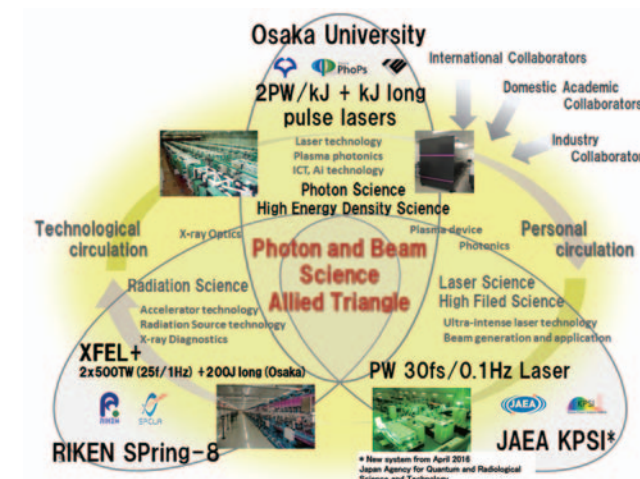


Figure 2
Alliance on photon and beam science in the 100km triangle by Osaka Univ., RIKEN SPring-8 and JAEA KPSI

Researching Global History from Asian Perspectives

Shigeru AKITA

Professor, Department of World History, Graduate School of Letters

www.globalhistoryonline.com/

Global History Studies at Osaka University: Central Eurasia, Maritime Asia and the Modern World System

The Global History Division at Osaka University explores “global history” from Asian perspectives through interdisciplinary research embracing a wide range of academic fields: history, international relations, economics, the humanities and social sciences, and cultural studies. In addition, Osaka University can draw on a rich legacy in area studies, particularly Asian Studies. The Global History Division consists of three research groups focusing on: (a) the supra-regional history of networks and interactions in ancient Central Eurasia and early modern maritime Asia; (b) the micro-history of medieval Kansai (Japan) and modern China; and (c) global economic history and the Modern World System.

The Asian History Section of the Department of World History at Osaka University has a long-standing tradition of archival research on “Inner” Asia (now often called “Central Eurasia”) in a number of languages: Turkish, Mongol, Tibetan, Manchurian, and of course Chinese. In the last two decades, the study of Asian maritime history, focusing on the East and South China Seas, and partly involving researchers from the Japanese History Major, has also gained in importance. Under the influence of these two leading research groups, studies of Chinese and Japanese histories have shifted their regional investigative focus away from the conventional “East Asia” perspective (essentially China, Korea and Japan) and toward a broader and more flexible area of “Eastern Eurasia” and/or “Maritime Asia”. As a result, polygonal collaborations among scholars working on Central Eurasia, China, Japan, and maritime Asia (including Southeast Asia) are developing. Valuable methodological and analytical connections could be established between archival research and field surveys and between perspectives on global relationships and the micro-analysis of local societies. New insights were also obtained from incorporating gender perspectives.

Research by the global economic history group aims at investigating the modern and contemporary international

economic order of Asia, among others through collaborations with scholars from Britain and America and with Asian scholars from Korea, China and India. Relevant research areas include the role of hegemonic states in the transformation of the international order; the comparative study of empires from the “early modern” period to the twentieth century; and the study of the historical origins of the “East Asian economic resurgence”.



Shigeru Akita et.al (eds.), *The Transformation of the International Order of Asia* (London and New York: Routledge, 2015). Collected essays on global economic history.

Asian Maritime History: Reconsidering “the Age of Commerce”

The orthodox interpretations of the modern world system are being challenged by the emergence of new studies of the early modern world, and by the progress and recent developments in Asian economic history in Japan as well as in Anglo-American academia. “Maritime history” is a stimulating field of research that allows to examine the interactions or connections between the regional histories investigated by area studies on the one hand, and global history on the other.

Scholars of “maritime history” at Osaka have been able to

provide evidence for the density of trading networks developed by Chinese, Indian and local merchants in Asian waters since the Ming dynasty in China in the second half of the fourteenth century. Researchers at Osaka collaborated with scholars of Southeast Asian history led by Anthony Reid. This research explored the long tradition of commercial interdependence and exchanges between Northeast Asia and Southeast Asia through cosmopolitan and frequently hybridized merchant networks during the period before and after Reid’s Southeast Asian “Age of Commerce” (15th-17th



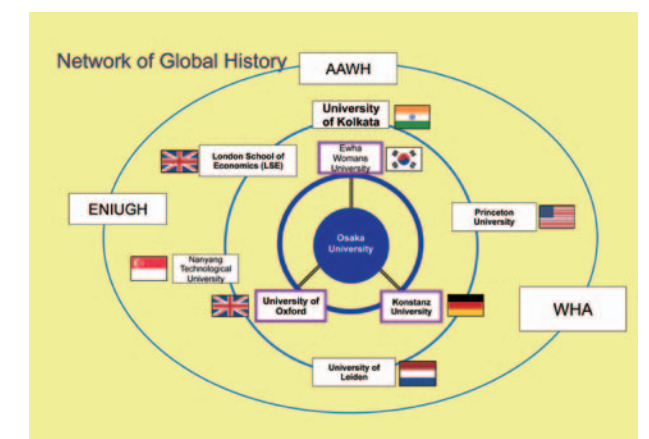
Momoki, Shiro (ed.), *Kaiki-Ajishi Kenkyū Nyūmon [Introduction to Research on Maritime Asian History]* (Tokyo: Iwanami-shoten, 2008). This book has been translated into Korean and Chinese.

centuries). Following the arrival of the Portuguese in Asian waters around 1500, traders based in Southeast Asia, often with a Chinese-Muslim hybrid background, conducted most of the trade with China. European powers encountered these Asian trading networks and could participate in and utilize Asian networks for their own long-distance trade between Europe and Asia in the “long sixteenth century”. European countries could also earn large profits from their entry into the intra-Asian trade network by collaborating with Asian merchants and with the acquiescence of political authorities (world empires) in Asia. Drawing extensively on local Asian historical documents as well as European

sources, the collaborative research group published a book on Asian maritime history in 2008, - the first comprehensive volume on the subject in international academia.

Global Academic Collaboration

Osaka University has recently embarked on a three-year international collaboration with the Oxford Center of Global History under James Belich and four other partner universities: Princeton, Kolkata, Leiden and Constance. This project, “Global Nodes, Global Order: Macro and Micro-histories of Globalization”, attempts to historicize and re-conceptualize globalization. The aim is to foster inter-disciplinary research in order to better understand the mechanisms of global interaction and their implications for the present. By associating the established Asian network (The Asian Association of World Historians, AAWH) with this new project, researchers at Osaka hope to offer new insights into world and global history from Asian perspectives.



Osaka University form collaborating network of global history with 8 prominent universities, and 3 international associations.

International Prizes

	Recipient	Year	Achievement
 Nobel Prize	Hideki YUKAWA	1949	The Nobel Prize in Physics for his theoretical prediction of mesons.
 Wolf Foundation - קרן וולף Wolf Prize	Osamu HAYAISHI	1986	The Wolf Prize in Medicine for his discovery of the oxygenase enzymes and elucidation of their structure and biological importance.
	Mikio SATO	2002-2003	The Wolf Prize in Mathematics for foundation of algebraic analysis, theories of hyperfunction and micro-local hyperfunction, holonomic quantum field theory, and creation of algebraic analysis including a unified theory of soliton equations.
 Gairdner International Award	Shizuo AKIRA	2011	The discovery of proteins playing a key role in innate immunity.
	Shimon SAKAGUCHI	2015	The discovery of regulatory T cells, characterization of their role in immunity and application to the treatment of autoimmune diseases and cancer.
 Lasker Award	Hidesaburo HANAFUSA	1982	Albert Lasker Basic Medical Research Award for demonstrating how RNA tumor viruses cause cancer, and elucidating their role in combining, rescuing and maintaining oncogenes in the viral genome.
 Crafoord Prize	Tadamitsu KISHIMOTO Toshio HIRANO	2009	The Crafoord Prize for their pioneering work in isolating interleukins, determining their properties and exploring their role in the onset of inflammatory diseases.
 Japan Prize	Tadamitsu KISHIMOTO Toshio HIRANO	2011	The discovery of interleukin-6 and its applications in the treatment of diseases.

Thomson Reuters Citation Laureates

Shizuo AKIRA 2008

Shimon SAKAGUCHI 2015

The World's Most Innovative Universities

Thomson Reuters ranks World's Top 100 Innovative Universities
(as of September, 2015)

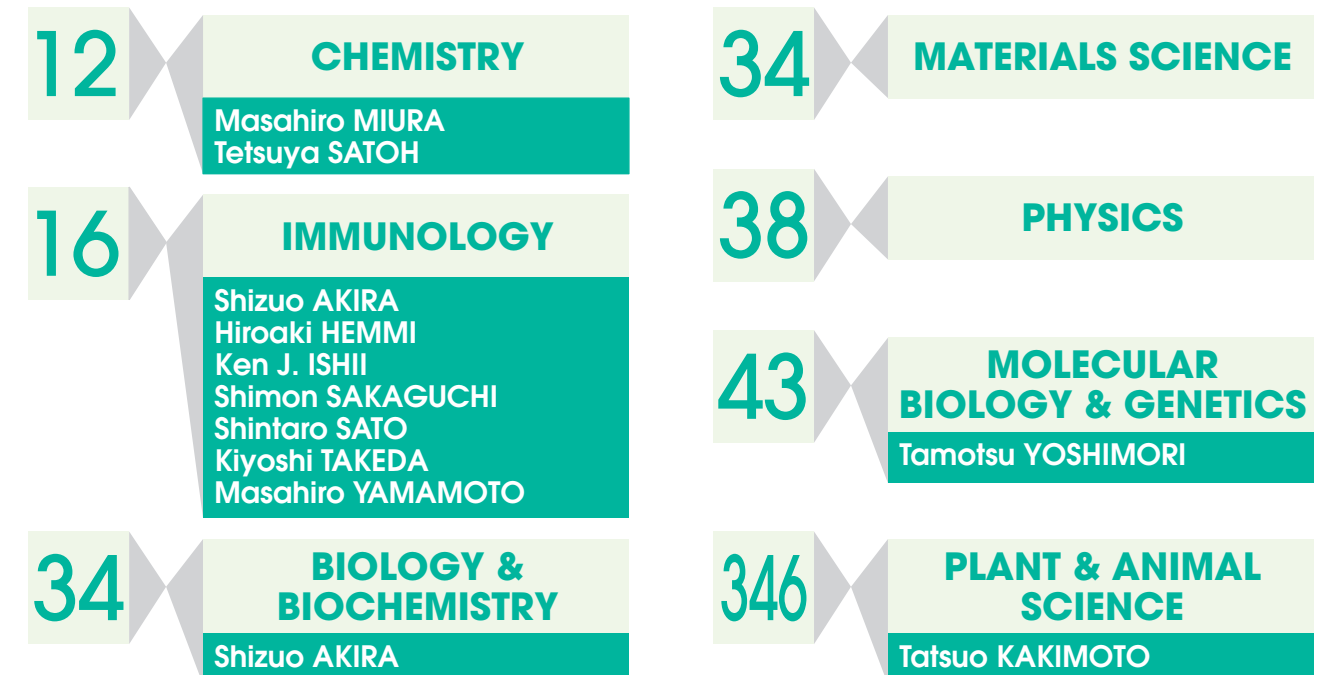
Osaka University is ranked **18th** in the world
and **1st** in Japan.

World University Rankings & The Essential Science Indicators database from Thomson Reuters

(as of November, 2015)

Influential Researchers

Highly Cited Researchers 2015, Thomson Reuters
(as of January, 2016)



Organization

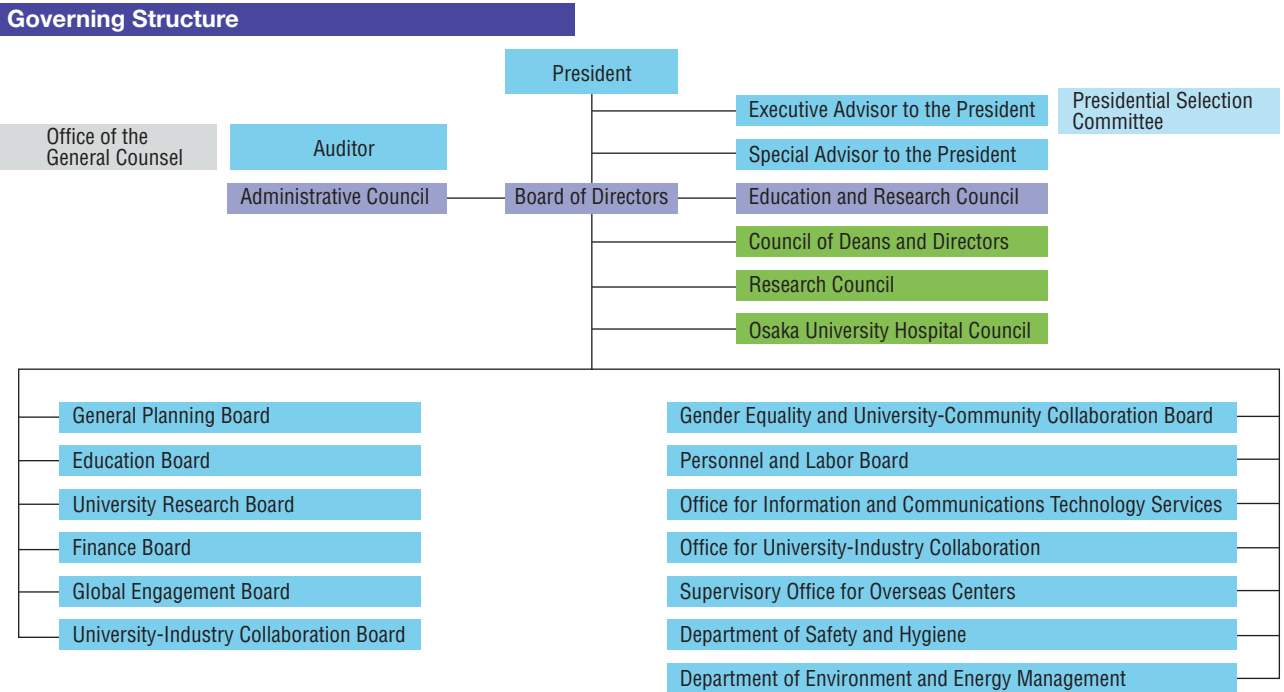
(as of December 1, 2015)

Schools and Graduate Schools	
School of Letters	Graduate School of Letters
Humanities	Studies on Cultural Forms / Studies on Cultural Expressions Studies on Cultural Dynamics (Master Course)
School of Human Sciences	Graduate School of Human Sciences
Human Sciences	Ethological Studies Laboratory Human Sciences
School of Foreign Studies	
Foreign Studies	
School of Law	Graduate School of Law and Politics
Law / International Public Policy	Center for the Practice of Legal and Political Expertise Law and Political Science
School of Economics	Graduate School of Economics
Economics and Business	Economics / Business and Management
School of Science	Graduate School of Science
Mathematics / Physics / Chemistry / Biological Sciences	- Research Center for Structural Thermodynamics - Project Research Center for Fundamental Sciences - Center for Advanced High Magnetic Field Science Mathematics / Physics / Chemistry / Biological Sciences / Macromolecular Science Earth and Space Science
Faculty of Medicine	Graduate School of Medicine
- Hospital - Institute of Experimental Animal Sciences Medical School / School of Allied Health Sciences	- Center for Medical Research and Education - Center for Twin Research - PET Molecular Imaging Center - Center of Medical Innovation and Translational Research - Medical Education Center - Center for International Relations Medicine / Medical Science (Master Course) / Health Sciences
School of Dentistry	Graduate School of Dentistry
- Hospital - Dental Technology Institute Dentistry	Oral Sciences
School of Pharmaceutical Sciences	Graduate School of Pharmaceutical Sciences
Pharmacy / Pharmaceutical Sciences	- Experimental Institute for Medicinal Plants - Center for Advanced Education and Research in Pharmaceutical Sciences - Drug Innovation Center - Center for Pharmaceutical Education and Research in Community Medical Care Advanced Pharmaco-science / Medical Pharmacy
School of Engineering	Graduate School of Engineering
Applied Science / Mechanical, Materials and Manufacturing Science / Electronic and Information Engineering Sustainable Energy and Environmental Engineering Global Architecture	- Research Center for Ultra-Precision Science and Technology - Center for Atomic and Molecular Technologies - Frontier Research Center - On-site Research Center for Sustainability Design - Continuing Professional Development Center - Education and Research Center for the Advanced Structural and Functional Materials Design Advanced Science and Biotechnology / Applied Chemistry Precision Science & Technology and Applied Physics Adaptive Machine Systems / Mechanical Engineering Materials and Manufacturing Science / Electrical, Electronic and Information Engineering Sustainable Energy and Environmental Engineering Global Architecture / Management of Industry and Technology
School of Engineering Science	Graduate School of Engineering Science
Electronics and Materials Physics Chemical Science and Engineering / Systems Science Information and Computer Sciences	- Center for Science and Technology under Extreme Conditions - Center for Promotion of Advanced Interdisciplinary Research Materials Engineering Science Mechanical Science and Bioengineering / Systems Innovation
	Graduate School of Language and Culture
	Language and Culture / Language and Society / Japanese Language and Culture
	Osaka School of International Public Policy
	International Public Policy / Comparative Public Policy
	Graduate School of Information Science and Technology
	Pure and Applied Mathematics / Information and Physical Sciences Computer Science / Information Systems Engineering / Information Networking Multimedia Engineering / Bioinformatic Engineering
	Graduate School of Frontier Biosciences
	Frontier Biosciences
	Law School
	Legal Practice
	United Graduate School of Child Development, Osaka University, Kanazawa University, Hamamatsu University School of Medicine, Chiba University and University of Fukui
	Molecular Research Center for Children's Mental Development Child Development

Research Institutes
Research Institute for Microbial Diseases - Animal Resource Center for Infectious Diseases - DNA-chip Development Center for Infectious Diseases - Research Center for Infectious Disease Control - Genome Information Research Center - International Research Center for Infectious Diseases - Center for Genetic Analysis of Biological Responses The Institute of Scientific and Industrial Research - Nanoscience and Nanotechnology Center - Comprehensive Analysis Center - Research Laboratory for Quantum Beam Science - Center for Collaborative Research Education and Training - International Collaborative Research Center - Nano-Macro Materials, Devices and System Research Alliances Institute for Protein Research - Research Center for State-of-the-art Functional Protein Analysis Institute of Social and Economic Research - Research Center for Behavioral Economics Joining and Welding Research Institute - Smart Processing Research Center

University Libraries
- Main Library - Life Sciences Library - Science and Engineering Library - International Studies Library

Joint-Use Facilities
Low Temperature Center Research Center for Ultra-High Voltage Electron Microscopy Radioisotope Research Center Research Center for Environmental Preservation Center for International Education and Exchange International Center for Biotechnology Research Center for Solar Energy Chemistry The Museum of Osaka University Health Care Center Global Center for Medical Engineering and Informatics Center for the Study of Communication-Design Center for Mathematical Modeling and Data Science Center for Scientific Instrument Renovation and Manufacturing Support Global Collaboration Center Center for Japanese Language and Culture Center for Environmental Innovation Design for Sustainability (Known as Sustainability Design Center until October 2010) Institute for NanoScience Design Intellectual Property Center (IPrism)



National Joint-Use Facilities
Research Center for Nuclear Physics Cybermedia Center Institute of Laser Engineering

World Premier International Research Center (WPI)
Immunology Frontier Research Center

Institute for Advanced Interdisciplinary Research
Center for Information and Neural Networks

Education & Research Support Organizations
Institute for Academic Initiatives (IAI) Center for Education in Liberal Arts and Sciences Office for University-Industry Collaboration Office for Information and Communications Technology Services Teaching and Learning Support Center Kaitokudo for the 21st Century Tekijuku Commemoration Center Department for the Administration of Safety and Hygiene Department of Environment and Energy Management Support Center for Campus Life

Overseas Centers
North American Center for Academic Initiatives (San Francisco Office) European Center for Academic Initiatives (Groningen Office) ASEAN Center for Academic Initiatives (Bangkok Office) East Asian Center for Academic Initiatives (Shanghai Office)

Osaka University Nakanoshima Center

Administration Bureau
- Office of the President - Office for Academic Initiatives - Department of Publicity and University-Community Collaboration - Department of General Affairs and Planning - Department of Research Promotion - Department of Finance - Department of Information and Communications Technology Services - Department of Education Development - Department of Facilities - Audit Office - Office for the Proper Usage of Research Grants - Environment and Energy Management Division - Housing Division



Liberal Arts and Sciences

Liberal arts and sciences education is a requisite for cultivating sophisticated judgment, a strong sense of ethics, and international-mindedness in students at Osaka University

General education at Osaka University is managed by the Center for Education in Liberal Arts and Sciences (CELAS) with the participation of all faculties. The liberal arts and sciences education provided by this center is designed to educate future professionals and scholars who have not only preeminent knowledge in a wide variety of fields, but also demonstrate comprehensive judgment.

For freshmen and sophomores, the liberal arts and sciences education constitutes a significant part of their studies. For seniors and graduate students, this education is also considered crucial in order to help students to balance their specialized knowledge with a broader perspective.

In April, 2012, CELAS was founded to promote a cohesive liberal arts and science education for all



students from freshmen to graduate students. General education was previously conducted by several institutions: the Institute for Higher Education Research and Practice (IHERP, abolished March 2012), the Graduate School of Language and Culture, the Center for the Study of Communication-Design (CSCD), the Center for Interdisciplinary Research and Education, and the Global Collaboration Center (GLOCOL). CELAS was built in order to conduct our coherent general education through the unification of these institutions and to encourage students to acquire “comprehensive understanding,” “design prowess,” and “transcultural communicability,” which are the educational goals of Osaka University.



Liberal Education Subjects for Freshmen and Sophomores



Letters



A Noh mask (left) and dance performance (right) (Theatre studies)

The Graduate School of Letters and the School of Letters were established as an independent faculty in 1949. The graduate school has three programmes, one awarding a Master of Arts degree and the other two awarding MA and PhD degrees. The MA programme, Cultural Dynamics, includes four fields of study: Cultural Coexistence, Arts and Media, Literature and Environment, and Ecological Linguistics. The MA and PhD programmes, Cultural Forms and Cultural Expressions, include 23 fields of study, which can be grouped into five broader disciplines: philosophy, history, literature, art, and Japanese studies. These programmes aim to cultivate in students a high level of knowledge of the humanities by engaging in research in order to develop a multifaceted understanding of issues and subjects under investigation. The undergraduate programme offers 20 fields of study. Its educational goal is to provide students with the kinds of knowledge in the humanities that will enable them to understand issues and subjects under investigation from multiple perspectives. We also put a high priority on encouraging students to go beyond the mere acquisition of knowledge by developing their abilities to think and express their own views.

Vision and tradition in the humanities

The Graduate School of Letters and the School of Letters have both traditional and relatively new disciplines. The faculty has a long and respected tradition in researching and teaching disciplines such as philosophy, literature and history. Japanese Literature, for example, covers from ancient times up to present day literary work. In addition to detailed reading of individual works, a range of interdisciplinary approaches are taken to study authors and cultural trends in each epoch.

Archeology is another example of our traditional discipline. The teachers and students in the department have engaged in excavation of many sites both in Japan



Artifacts from Nonaka Kofun (Archeology)

and abroad. In 2015, artifacts discovered during excavation of the Nonaka Kofun in Osaka Prefecture were designated as Important Cultural Properties by the Cultural Agency.

The faculty is also renowned for its unique disciplines rarely found at other universities. Musicology and Theatre Studies is one such field of study. Musicology studies a wide variety of genres, including Japanese and world music as well as Western, and popular music as well as classical. Theatre studies deals with an equally wide variety of performing arts, including European classical and modern plays, Japanese traditional and contemporary plays, musicals and ballets.

Japanese Studies also departs from traditional disciplines and proposes to study Japanese history, religion,



A class with a piano (Musicology)

Graduate School of Letters

– Studies on Cultural Forms

- Philosophy and History of Philosophy
- Studies on Modern Thought and Culture
- Clinical Philosophy
- Chinese Philosophy
- Indian Philosophy and Buddhist Studies
- Japanese Studies
- Japanese History
- Asian History
- European and American History
- Archaeology
- Human Geography

– Studies on Cultural Expressions

- Japanese Literature
- Comparative Literature
- Chinese Literature
- English and American Literature
- German Literature
- French Literature
- Japanese Linguistics
- English Linguistics
- Aesthetics and Science of Literary Arts
- Musicology and Theatre Studies
- Art History

– Studies on Cultural Dynamics(Master Course)

- Cultural Coexistence
- Arts and Media
- Literature and Environment
- Ecological Linguistics

School of Letters

- Philosophy and History of Philosophy
- Ethics
- Chinese Philosophy
- Indian Philosophy
- Japanese History Major
- Asian History
- European and American History
- Archaeology
- Japanese Literature and History of Japanese Language
- Comparative Literature
- Chinese Literature
- English and American Literature and English Linguistics
- German Literature
- French Literature
- Aesthetics and Science of Literary Arts
- Musicology and Theatre Studies
- Art History
- Japanese Studies
- Human Geography
- Japanese Linguistics



Workshop (Clinical Philosophy)

thought, and culture in the context of cultural exchanges and conflicts with and among heterogeneous cultures. They often deal with contemporary issues such as war, colonialism, immigration, and gender.

Clinical Philosophy is a new discipline originally conceived of by our faculty. It stems from ethics and poses questions about contemporary social issues such as medical treatment and care, education, performing arts and sexuality, which have been informed by Western and modern Japanese ethical thought, moral theory, contemporary social philosophy, and cultural theory.

Our recent projects

In 2014, we launched five new projects to promote international and university-community collaboration in the humanities. Those projects are Global Japanese Studies, Global History, International Research Collaboration Network for Studies of Japanese Historical Documents, Comparative Study in Design with a focus on Asia, and Arts and Research. We are also running an educational project called Art Festival Human Resources Development, which is funded by the Cultural Agency and



Historical documents

provides hands-on learning experiences for people working or aspiring to work for art related institutions such as theatres, museums, and concert halls.



Fieldwork at a festival (Japanese Studies)

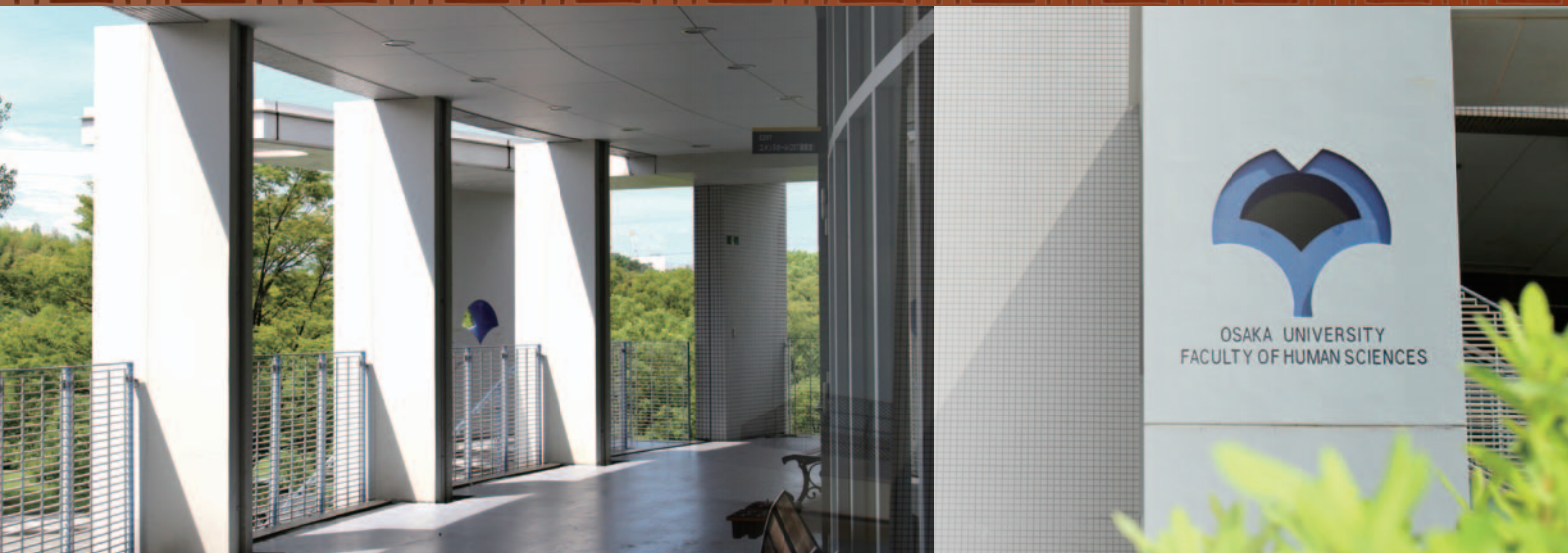
International education and research exchanges

We encourage a variety of forms of international exchange. We have more than 100 full-time international students from over 20 countries (144 students from 23 countries and regions as of May 2015) who are supported by a specialized instructor for international students and an Advising Office that offers a range of activities and events to facilitate their acclimatisation on campus. The faculty also includes some non-Japanese tenured instructors, and quite a few research fellows are accepted from abroad each year (18 in the 2014 academic year). The Graduate School of Letters and the School of Letters have an inter-faculty MOU with 13 universities in eight countries and one region as of September 2015. We have had numerous education and research collaboration projects. Among them are Euroculture Master Programme within the Erasmus Mundus Programme funded by the European Union and the ISAP Programme in collaboration with Heidelberg University funded by the German Academic Exchange Service (Deutscher Akademischer Austausch Dienst).



Fieldwork (Oriental Art History)

Human Sciences



The School of Human Sciences was established in 1972 covering three academic disciplines: psychology, sociology and education. It was the first school or faculty to carry the name 'human sciences' in the country. In 1976 the Graduate School of Human Sciences was created offering Master and Doctoral level programs. Today areas of study include behavioral sciences, psychology, sociology, biological and cultural anthropology, education, philosophy.

Our main mission in the School and Graduate School of Human Sciences is to contribute to the betterment of societies (local, national and global) by cultivating students who are inquiring and creative thinkers with a strong sense of public service, and by producing high quality research that will help us better understand and thus address the complex social, economic, health and environmental problems that we face in the early 21st century. In this endeavor, we are strongly committed to an interdisciplinary and evidence-based approach.

Graduate School of Human Sciences

Since the Graduate School of Human Sciences was established, it has followed the groundbreaking path of integrating the sciences and the arts conceptually and practically to generate a comprehensive and relevant understanding of human beings and the societies that they create around them. To realize our mission, the Graduate School has emphasized the utilization of



A view of a sociology class in action



A scene of the simulated experience as visually impaired person

empirical, practical, and in some fields, clinical research methodologies that feed directly into the learning environment. The focus is firmly on studying real people and real societies through fieldwork, interviews, and questionnaire data collection. The School also conducts research observing nonhuman primates in their natural environment.

Building on key research and educational outcomes accrued over the past 40 years of the School's history, we are offering a new major in Kyosei Studies (Critical Studies in Coexistence, Symbiosis and Conviviality) from April 2016 in the Graduate School of Human Sciences.

The Japanese word *kyosei* contains the possibility for

School of Human Sciences – Human Sciences

- Behavioral Sciences
- Sociology, Modern Thought and Anthropology
- Education
- Kyosei Studies (Critical Studies in Coexistence, Symbiosis and Conviviality)

Graduate School of Human Sciences

– Human Sciences

- Psychological Sciences
- Sociology
- Behavioral Sciences
- Modern Thought and Anthropology
- Clinical Inquiries in Education
- Future Innovation Kyosei Studies
- Social Inquiries in Education
- Global Innovation Kyosei Studies

multiple translations, but let us start from a simple word, *co-existence*. This new major seeks to critically explore the potential for people with different backgrounds and characteristics, whether due to ethnicity, nationality, faith, place of birth, gender, sexual orientation, and/or health status etc., to live together on the basis of mutual respect and equity. The scope of this exciting new area of studies goes beyond human-to-human relationships, but reaches as far as thinking about the *kyosei* of humans-to-nature and humans-to-the-material world.

With the launching of Kyosei Studies, we aim to further enhance the graduate-level research environment by offering a new area of study whilst also providing learning opportunities where students gain higher level generic and subject specific skills and competencies.

As a result, we expect students on this program to be able to make an important contribution to wider society in a number of fields, as well as in a variety of cultural and social setting in order to realise the ideal of *kyosei*.



Interview of the off-campus

Human Sciences International Undergraduate Degree Program

The Human Sciences International Undergraduate Degree Program is an innovative program that enables students to major in one of two tightly integrated majors: Global Citizenship and Contemporary Japan. The program features highly interactive and innovative teaching with students having close contact with international professors across a wide range of human science disciplines. The program aims to cultivate internationally aware graduates able to think and act effectively both locally and globally.

• Global Citizenship Major

The Global Citizenship Major is a degree program that explores the limits and potential of citizenship in a world of massive global migration and huge demographic shifts within nations and communities. This major is particularly aimed at those students who are hoping to

Human Sciences International Undergraduate Degree Program

- Global Citizenship Major
- Contemporary Japan Major



Two students discussing a class assignment

work in international agencies including the UN, NGOs, municipal agencies and Corporate Social Responsibility (CSR) sections of global and Japanese businesses. Students will have a solid grounding in how to ethically identify, investigate, analyze and advocate solutions to problems of a multidimensional and global nature.

• Contemporary Japan Major

The Contemporary Japan Major is an area studies program that takes multidisciplinary and interdisciplinary approaches to studying Japan. While focusing on Japan as an area of study, this program also aims to reflect on the process of globalization. The approach taken will enable students to gain an in-depth understanding of the social, cultural, economic, political and linguistic aspects of the country. We expect that students will be able to integrate a variety of approaches to formulating and solving problems, and utilize diverse materials and information sources to investigate different issues pertaining to Japan and its position in the region and world. Graduates of the Contemporary Japan Major, as area studies specialists, will be well placed to seek employment in Japan or the wide globalized job market.



Practical training in psychotherapeutic technique

Foreign Studies

School of Foreign Studies – Foreign Studies

- Chinese
- Korean
- Mongolian
- Indonesian
- Filipino
- Thai
- Vietnamese
- Burmese
- Hindi
- Urdu
- Arabic
- Persian
- Turkish
- Swahili
- Russian
- Hungarian
- Danish
- Swedish
- German
- English
- French
- Italian
- Spanish
- Portuguese
- Japanese



“Culture through Language, Language through Culture”

Learning culture through language and learning language through culture—that is the core of what it means to do foreign studies. One without the other is never complete. We teach both language and culture. The School of Foreign Studies is an ideal place for those of you who aim to become experts in both.

Educational Goals

Our goals are to promote education and research in foreign languages and cultures, both in theory and practice, to instill broad knowledge in the students so that they can contribute to the world community, and to nurture their deep understanding of foreign affairs.

To achieve these goals, SFS offers 25 modern languages as majors and many other ancient and modern languages as minors. During the first and the second years, the students are to take one foreign language as their major language, together with core introductory subjects in various academic disciplines.

In the final two years they will study their major language at a more advanced level, along with a problem-oriented research related to a particular academic discipline of their choice.

Historical Description

The School of Foreign Studies (SFS) was first established in December 1921 as Osaka School of Foreign Languages at Uehonmachi, Osaka, committed to international peace and amity. It was financially helped by the donation of ¥1,000,000 by Choko Hayashi, an Osaka businesswoman. Having survived the Second World War, it moved to Takatsuki and then



back to Uehonmachi, Osaka. In 1979 it moved again to a new location in Minoh City for more extensive academic activities. On October 1, 2007, it became part of Osaka University as School of Foreign Studies.

“Let Language be your Wings to the World”

What is “Foreign Studies”? Why are we not just called “School of Foreign Languages”? Well, there are good reasons.

Globalization has been going on in many ways; people, capital, and information, they never stay put in a single place but circulate on a global level. We witness changes in businesses, politics, and cultures almost on a daily basis. The changes certainly are not



taking place just at remote places far from where we live. They are right in front of us and all around us, and we are in the middle of them, be it in our workplaces, in our neighborhoods, or in our city streets. Look around. Visible signs are everywhere. We see an increasing number of people of different nationalities or cultural backgrounds every day and everywhere. Japan is in the middle of all this, as many other countries are, and that is what it means to be living in today’s world—internationalization within and without.

Within—As different cultures come into contact or even mingle together, our minds and attitudes get influenced and become richer in kind, our ways of living improve, and many other not immediately foreseeable good things may take place. Yet, at



the same time, we may witness frictions, pressures, and collisions because of cultural differences. The more multicultural we become, the more need there will be for people who can act as cultural bridges, whose job it is to help different people understand each other.



Without—These days, military conflicts arise almost routinely in many parts of the world, or poverty strikes, and environmental problems beleaguer many nations. Consequently, there is need like never before for coordinated global cooperation and aid through international organizations, governments and NPOs. In turn, these groups need employees who can function in at least two languages and cultures if they are to help different peoples work together.

Within and without, there is a need—urgently felt—for more qualified people to help those of different



cultural backgrounds and nationalities understand each other and communicate with each other. Locally and internationally, we need people who have a deep understanding of both language and culture.



Law / Law and Politics

School of Law – Law – International Public Policy

Graduate School of Law and Politics – Law and Political Science

- Public Law and Policy
- Intellectual Property Law
- Comparative Law and Politics



The Faculty of Law offers an undergraduate program, officially called the School of Law. The Faculty of Law also offers a graduate program, officially called the Graduate School of Law and Politics. As a leading academic institution in both legal education and research, we aim to contribute to the wider society by developing human capital, ideas, and intellectual innovations that are essential for evolution and increasing welfare everywhere.

Solid Tradition and Innovative Spirit

The Faculty of Law has a solid tradition that goes back 60 years. The Faculty of Letters and Law was established at Osaka University in 1948, only three years after the end of World War II. Five years later, in 1953, as part of a fundamental restructuring of the university, the Faculty was divided into three separate faculties, being the faculties of Law, Letters and Economics. Since then, the Faculty of Law has developed steadily, maintaining a healthy respect for both tradition and innovation as it has grown. Now the Faculty of Law, which started with only 16 professors in 1953, has about 60 full-time professors and is widely recognized as one of Japan's top-ranking institutions for legal education and research. In 2008, the Faculty celebrated its 60th Anniversary.

The Faculty of Law offers an undergraduate program, officially called the School of Law. In 2008, it was divided into two departments, the Department of Law and the Department of International Public Policy. Two hundred and fifty students enroll every year and the student faculty ratio of the program is ideal. The Faculty of Law also offers a graduate program, officially called the Graduate School of Law and Politics. Currently, there are 86 students in the master's program, of which 31 are international students, and

there are 38 students in the doctorate program, 13 of whom are international students. The master's program of the Graduate School of Law and Politics consists of three sub-programs with different goals and curricula: Public Law and Policy, Comparative Law and Politics, and Intellectual Property Law. As a leading academic institution in both legal education and research, we view it as one of our missions to contribute to the wider society by developing human capital, ideas, and intellectual innovations that are essential for evolution and increasing welfare.



Toward a Globally Attractive Law School

The School of Law and the Graduate School of Law and Politics are actively promoting international exchanges with fifteen prestigious law faculties around the world based on inter-faculty academic exchange agreements. Among the most essential objectives of these agreements is to expand the student exchange program. Every year, the School of Law and the Graduate School of Law and Politics attract a large number of international students, from other Asian countries in particular, those who are interested in acquiring knowledge of Japanese law and adapting it for use in their own countries. We are currently working to offer more courses on Japanese law taught in English in the spring semester, so that more students may obtain easier access to the Japanese legal system



and legal culture. Courses such as "Japanese Legal/ Political System and Culture," "Topics in Japanese Law", and "Topics in Comparative Law" are scheduled for the 2016 spring and autumn semester. Many Japanese students also attend the courses taught in English, and these courses provide a forum for interaction and exchange of ideas among students from Japan and those from abroad that matches the mainstream classes taught in Japanese. To meet the needs of international students, the School of Law and the Graduate School of Law and Politics have set up an International Student Consultation Room. Here, an experienced counselor, who are in charge of taking care of international students, provide advice and support upon request, on issues such as their research and everyday studies as well as personal issues or problems relating to life off campus. This helps students to focus on their studies safe in the knowledge that a system exists to assist them if problems occur. In addition, we have an assigned tutor system. Each new international student will be provided with his or her own Japanese undergraduate or graduate student as a tutor who can provide assistance with the academic demands of the program.

Economics

School of Economics – Economics and Business

Graduate School of Economics – Economics

- Economics Course
- Applied Economics Course
- Economic History and Business History Course

Graduate School of Economics – Business and Management

- Management Research Course
- Management of Technology (MOT) Course
- Business Course
- Global Management Course

Australia, China, Indonesia, Mongolia, Russia, South Korea, Taiwan, Thailand and Vietnam. There are now around 160 foreign students enrolled in both the School of Economics and the Graduate School of Economics.



on the quantitative approach, creativity and rigor in logic. The Applied Economics Course is designed for those who wish to pursue careers as economists or analysts outside academia and it aims to foster the ability to apply the tools of Modern Economics to the analysis of real-world problems.

The Business and Management Program emphasizes corporate management through a scientific approach. This Program aims at training students, not only to become top researchers through the Management Research Course, but also analytical specialists who can play vital roles in the business world through the MOT Course, the Business Course and the Global Management Course. Notably, the three-year MOT Course, offered jointly with the School of Engineering, allows students to obtain two master degrees, in engineering and business, at the same time. In 2008, we started a new area of research in the Business and Management Program: the Global Management Course, which aims to foster capable individuals who have a thorough grounding in global perspectives and strong management skills to manage urban and regional developments as well as technological advancement.



The Graduate School of Economics at Osaka University has placed Modern Economics at the core of its education and research program since its inception, and has consistently been at the forefront of studies in Modern Economics. Because of its many cutting-edge achievements, it has come to be known as the Place of Origin of Modern Economics in Japan. The School offers undergraduate and graduate programs. The undergraduate program features a systematic curriculum that allows students to choose from the disciplines of economics and business. The School offers two kinds of graduate programs: one aims to foster excellent researchers in economics, economic history, and management and business; and the other aims to nurture human resources based on highly professional knowledge.

Introduction and Overview

The School of Economics at Osaka University was founded in 1948. At that time, so-called “Marxian Economics” was the mainstream paradigm in Japan. However, the School has placed Modern Economics at the core of its education and research program since its inception, and has consistently been at the forefront of studies in Modern Economics. In regard to management and business studies, the School has been spearheading the field of management science with the most advanced analytical and mathematical techniques. In the field of economic history, the School has enjoyed some detachment from scholarly dogma, adhering to our firm belief in empirically based historical science, which rests on documental proofs and scientific analyses. As a result, the School has a reputation as a world-class research organization.

The Graduate School of Economics at Osaka University demonstrates its academic excellence by publishing the latest findings to the world. The Institute of Social and Economic Research, which plays an important part in the graduate program, edits one of



the world's most authoritative economic journals, the “International Economic Review,” in collaboration with the University of Pennsylvania.

The Graduate School operates in an environment conducive to internationalization of students. In the disciplines of economics and business administration, it is indispensable to acquire a cosmopolitan outlook in response to the economic globalization. The Graduate School has close relations with overseas universities under our academic Exchange Programs. A number of international students are regularly enrolled in the School. They are from various countries including

Undergraduate program

The School of Economics at Osaka University features a systematic curriculum that allows students to choose from the two disciplines of economics and business administration. Following the tradition of learning practically, emphasis is placed on quantitative methods such as statistical analysis and information processing to promote empirical education and research. Course subjects are offered in suitably small classes, which is one of the most attractive features of the school.

The School offers rich academic resources that are unique among undergraduate economics schools. The four-year undergraduate program consists of widely integrated economics and business administration courses with liberal arts and sciences, leading to the Bachelor of Science in Economics degree.

Graduate program

The Graduate School of Economics offers two major programs: Economics, and Business and Management. The Economics Program provides three courses: Economics, Applied Economics, and Economic History and Business History as the Economics Program. The Economics Course, and the Economic History and Business History Course are designed to nurture excellent academic researchers and feature the study of Modern Economics as well as economic history and business history with emphasis

Science



The study of Science at the Graduate School of Science includes a variety of disciplines, as can be seen from such diverse Departments as Mathematics, Physics, Chemistry, Biological Sciences, Macromolecular Science, and Earth and Space Science, affording a wide range of research topics for graduate study. The tradition at our department, since its foundation in 1931, is academic freedom with emphasis on the quest for the truth of nature. In 2009, Osaka University was selected as one of the core universities of the “Project for Establishing Core Universities for Internationalization (Global 30)”, a project of MEXT. Under this project, we have established English degree courses, Chemistry-Biology Combined Major Program at the undergraduate level, and physics, chemistry and biology courses at the graduate level.



Mathematics originated in the prehistoric age, from the need of handling concepts like numbers, magnitudes, and forms, and has been developing

ever since.

On the one hand, mathematics develops for its own sake, without aiming at specific applications.

Meanwhile, because of its abstract and logical nature, mathematics is the foundation of various other disciplines, including the natural sciences, engineering, medicine, and the social sciences. In reality, there is no clear dividing line between pure and applied mathematics, and their interaction sometimes brings us unexpected breakthroughs.

The department of Mathematics consists of 6 research groups, all of which have been making substantial

contributions to the developments of mathematics. Our department is ranked among the top three in the country.

The Department of Physics was established in 1931 when Osaka University was founded. The tradition of originality in research was established by the first president of Osaka University, Dr. NAGAOKA Hantaro, a prominent physicist who proposed a planetary model for atoms before Rutherford's splitting of the atom. Dr. YUKAWA Hideki created his meson theory for nuclear forces when he was a lecturer at Osaka University, and later became the first Japanese Nobel laureate.

Since then, our department has expanded to cover a wide range of physics. Many faculty and students in the department collaborate with other laboratories in Japan

and abroad, such as KEK, J-PARC, RIKEN, SPring8, CERN, FNAL, TRIUMF, RAL, and PSI. In 2010, the “International



School of Science

- Mathematics
 - Mathematics
- Physics
 - Physics
 - Earth and Space Science
- Chemistry
 - Chemistry
 - Macromolecular Science
- Biological Sciences
 - Biology

Graduate School of Science

- Mathematics
 - Algebra
 - Geometry
 - Analysis
 - Experimental Mathematics
 - Global Geometry and Analysis
 - Applied Mathematics
- Physics
 - Condensed Matter Physics
 - Particle and Nuclear Physics
 - Fundamental Physics
 - Quantum Physics
 - Interdisciplinary Physics
- Chemistry
 - Inorganic Chemistry
 - Physical Chemistry
 - Organic Chemistry
 - Interdisciplinary Chemistry
- Biological Sciences
 - Molecular and Cellular Biology
 - Cellular Biology
 - Adaptation Biology
 - Correlation Biology
 - Structural Biology
- Macromolecular Science
 - Macromolecular Synthesis and Reactions
 - Macromolecular Structure, Properties, and Functions
 - Macromolecular Assemblies
- Earth and Space Science
 - Astrophysics and Planetary Science
 - Earth and Planetary Material Science
 - Extreme Material Science

Physics Course (IPC)” was created to offer classes in English to students from abroad.

Chemistry is a science dealing with the structure, synthesis, and properties of substances, particularly at the molecular level. We are surrounded by chemical products; e.g., food, clothing, housing, drugs, and so on. In addition, new materials have been playing an essential role in the recent progress of technology and culture. Some chemicals, on the other hand, tend to give rise to serious environmental problems, whose solutions will depend upon chemistry research and education in future. Therefore, researches in the department focus on molecular design, synthesis, and characterization of novel compounds with specific functional interest in order to solve these problems.



The Department of Biological Sciences is currently in the midst of a revolution in Biology. Twenty years ago, no one imagined that we could unveil the human genome. Yet, in 2001, the draft sequence of the human genome was completed, and we now know the genome sequence of hundreds of living things. Brand new technologies and approaches, omics, computational biology, and bioimaging, to name but a few, are being introduced at a breathtaking pace. Various organs can be generated from cells in test tubes, and mechanisms of development can be



described at the molecular level. Students keep up with these developing areas and make new exciting findings with the help of members of the department.

In the Department of Macromolecular Science, basic studies are carried out on macromolecular syntheses and reactions, as well as structures, functions, and properties of both individual macromolecules and their assemblies. These studies are prerequisite for the development of novel plastics and functional polymers utilized in daily life, and to understand the functions of biopolymers that play important roles in biological systems.

The Department of Earth and Space Science is a unique department established in 1995, whose aim is to develop a new horizon in the research and the education of earth and space science from a physics-based perspective.

The department attempts to go beyond the traditional framework of science to develop a new frontier of interdisciplinary science, and construct a new style of earth and space science as an integrated science. Such research will open up new perspectives on the problems of the Earth's environment, the diversity of planets including extrasolar planets, and the evolution of the universe.

Medicine



The Faculty of Medicine comprises the Medical School and the School of Allied Health Sciences. Whilst the Medical School offers 6-year courses for future doctors, the School of Allied Health Sciences provides 4-year curricula in Nursing, Radiological Technology and Biomedical Engineering as well as Laboratory Sciences for prospective Nurses, Public Health Nurses, Midwives, Radiology Technicians and Laboratory Medical Technologists. The Medical Science Department trains proficient experts in Medical Professional Jobs such as Doctors, Nurses, Radiological Technicians, and Laboratory Medical Technologists who can provide increasingly sophisticated treatment appropriately and accurately as a team.

Promoting “Medical Care Team” has become essential to Medical Practice. The Medical School produces highly competent doctors who are able to diagnose and treat patients accurately. The School of Allied Health Sciences is committed to training highly competent Nurses, Radiology Technicians and Laboratory Medical Technologists who are able to work side by side with doctors.

World-leading Pioneering Research

Graduate School of Medicine produces numerous world-acclaimed research results, as well as outstanding researchers. In addition to an exceptional number of Grants-in-Aid for Scientific Research being awarded to our students by the Ministry of Education, Culture, Sports, Science and Technology and the number of Contract Research, Joint Research and Donation for Research and Education from private companies accorded to our students being among the highest in Japan, our students are also among those who produce the largest number of published theses in Japan and submit a substantial number of theses to renowned scientific magazines.

Responding to Globalization

Graduate School of Medicine is particularly proud of its cutting edge research in such fields of study as Immunology, Molecular Cell Biology, Molecular Genetics, Microbiology, Neuroscience, and Gene Therapy Science.

Therefore, our Medical Graduate Course actively invites foreign researchers, promotes Joint Research and calls for foreign students to come and study at our facilities. Furthermore, in the spirit of academic exchanges and international collaboration, we participate and actively promote international personnel exchanges. We especially like to welcome foreign researchers under Joint Research programs with overseas Universities and Institutions.

The international exchange program of Graduate School of Medicine, Osaka University grows every year.

The department invites foreign researchers, sends faculty members abroad and promotes various international exchange programs, such as overseas studies for Osaka University graduates and undergraduates. It also welcomes overseas students.

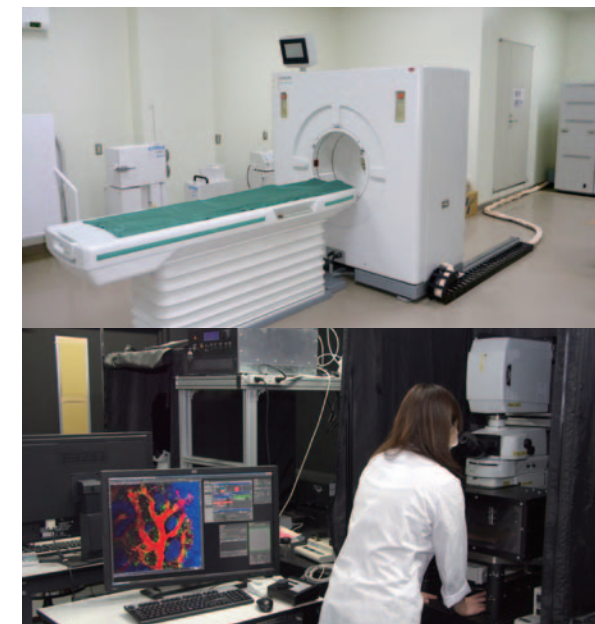
As part of international exchange, the School has established an International Exchange Fund for overseas students and students who have stayed on after their term of study expired. In addition, the School promotes Joint Research with overseas researcher. In addition, we have set up an International Exchange Grant for young researchers,

Faculty of Medicine

- Medical School
- School of Allied Health Sciences
- Nursing
 - Fundamental Nursing
 - Reproductive and Pediatric Nursing
 - Adult and Geriatric Nursing
 - Community Health Nursing
- Medical Physics and Engineering
 - Medical Physics
 - Medical Engineering
- Laboratory Sciences
 - Basic Laboratory Sciences
 - Clinical Laboratory Sciences

Graduate School of Medicine

- Medicine
 - Anatomy
 - Physiology
 - Biochemistry and Molecular Biology
 - Pathology
 - Pharmacology
 - Medical Engineering
- Social Medicine
- Microbiology and Immunology
- Genome Biology
- Health and Sport Sciences
- Internal Medicine
- Integrated Medicine
- Radiology
- Surgery
 - Acute Critical Medicine
 - Organ Regulation Medicine
 - Neural and Sensory Organ Surgery
 - Global and Innovative Medicine
 - Pharmaceutical Information
 - Infection Control and Prevention
- Medical Sciences (Master Course)
- Health Sciences Nursing Science
 - Evidence-Based Clinical Nursing
 - Children's and Women's Health
 - Health Promotion Science
- Medical Technology and Science
 - Functional Diagnostic Science
 - Medical Physics and Engineering
 - Biomedical Informatics



such as graduates willing to study at foreign universities or research institutes. Additionally, in an effort to nurture physicians with broad international experience, we offer our students an opportunity to follow courses at overseas medical institutions and strongly promote international exchanges.

Graduate School of Medicine, Osaka University has an interdepartmental exchange agreement with overseas universities. Participating universities and institutions are currently establishing Joint Research programs, as well as exchange programs available to researchers and students.

Furthermore, the Academic Exchange Program set up between Osaka University Graduate School of Medicine and a number of foreign universities and institutions, allows selected graduate and undergraduate students to receive research guidance and follow courses overseas for up to one year without losing an academic year.

CENTER FOR TWIN RESEARCH, Osaka University Graduate School of Medicine

Center for Twin Research, Osaka University Graduate School of Medicine, was established in April, 2009 as the very first research institution in Japan specializing in twin research.

In collaboration with other institutions inside and outside Japan, we aim to promote Japan's twin research and advance it to a higher level of innovative new research.

Multidisciplinary approach is central to our research values; we work in harmony with researchers of diverse fields at Osaka University, not only from medicine and health science, but also from dentistry, economics, human science, pharmacology, and others.

We specialize in twin research. Our center and the fundamental base for the study of twins were established by Professors Hayakawa and Iwatani, the first and second Center Directors, respectively. We study twins from infancy to later adulthood, hoping to contribute to the society and help people achieve better health and longer quality life.

Our core activities are:

- Research activities: Research and education of twin research
- International activities: Collaboration with overseas twin research institutions
- Social contribution activities: Offering symposiums, seminars, and twin festivals to public in order to raise awareness of twin research

Twin research is a promising approach toward preventive medicine for all, and we are committed to make a difference!



Dentistry



The School/Graduate School of Dentistry have been engaged in producing leading dental professionals who have research-oriented mind and perform an important role in global dental society. We are committed to continue exploring the new technologies and developments in oral science in the 21st century.

We are extensively focusing on the innovative dental research philosophy “Frontier Bio-Dentistry”, that implies fusion of traditional dentistry and the molecular/cellular biology-based sciences. We aim to develop the advanced dental care through tissue regeneration based on biological principals and establish personalized therapies. Our research achievements are internationally well-known and we continuously obtain high prestige. The project “Challenge to Intractable Oral Diseases” is one of our recent attempts to develop new diagnostic/preventive/treatment methods for refractory oral diseases in the modern medicine.

Dental Research in the 21st Century

The mouth can be called “the entrance” to a living organism. Eating, speaking and facial expressions performed by the maxillo-facial system, are indispensable not only for life maintenance but also for psychosocial health.

Most people may think that dentist is a practitioner skillfully drilling and filling the teeth and may have a mental image of dentistry as a kind of art. However, such ideas are out-of-date. Molecular biology techniques introduced in the 1980s have brought new understanding of life phenomena



in terms of molecular function. As a result, dental research has drastically changed, with inclusion of new challenges to research of molecular functions as well as understanding of the phenomena of heredity, immunity, and neurology at the molecular level. Thus, modern dentistry now includes the field of bioscience. In addition, high-profile regenerative medicine (medical

School of Dentistry – Dentistry

- Oral Anatomy and Developmental Biology
- Oral Physiology
- Molecular and Cellular Biochemistry
- Pharmacology
- Oral Pathology
- Oral Microbiology and Infectious Diseases
- Dental Materials Science and Technology
- Oral Health and Preventive Dentistry
- Restorative Dentistry, Endodontology
- Periodontology
- Prosthetic Dentistry
- Oral and Maxillofacial Surgery
- Orthodontics
- Pediatric Dentistry
- Dental Anesthesiology
- Oral Radiology

Graduate School of Dentistry – Oral Sciences

- Pathogenesis and Control of Oral Diseases
- Oromaxillofacial Regeneration
- Functional Oral Neuroscience
- Oral Infections and Disease Control
- Oral Biology and Disease Control
- Oral Developmental Biology
- Diagnostic Dentistry
- Community Dentistry and Informatics
- Craniofacial Development Biology
- Advanced Bio-Dental Research for Drug Development

procedures used for regeneration and reconstruction of lost tissue) has greatly advanced in dental fields. Genomic dentistry also has the great potential for development in the foreseeable future.

Oral function is indispensable for humans to have a satisfactory and happy life. Future developments in dental research will search for solutions for not only dental caries and periodontal diseases but also problems related to eating and speaking, which are largely concerned with quality of life. We aim to provide dental health care that allows our patients to have “a better life, to eat and live better,” which is more than simply treating dental diseases.

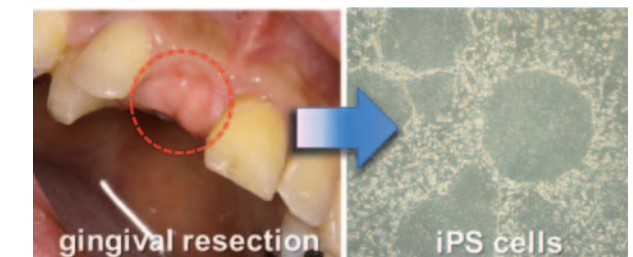
Based on such background to focus on “Frontier Bio-Dentistry”, Osaka University Graduate School of Dentistry provides an outstanding environment for those who are interested in bioscience study.

“Frontier Bio-Dentistry”, a paradigm shift in Dentistry

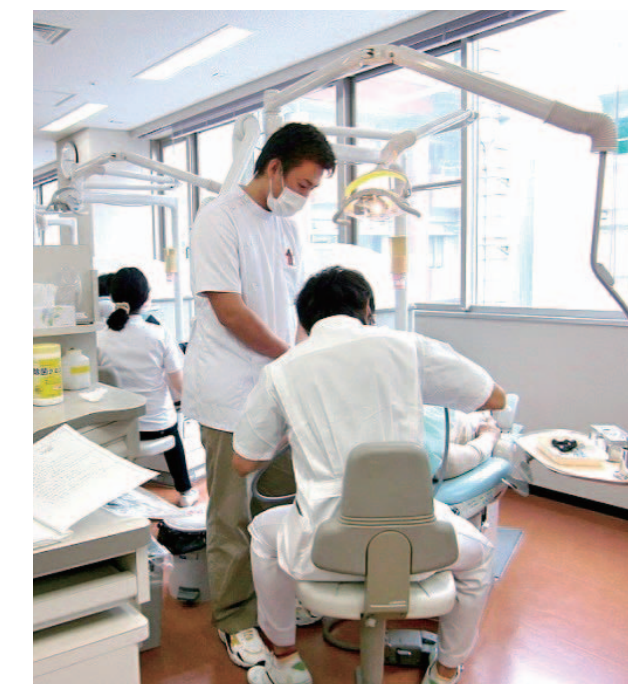
Osaka University Graduate School of Dentistry has set the large goal of not only training skillful clinicians, but also producing leading researchers in the most advanced areas of oral health care. We aim to realize a “better life, to eat and live better” for our patients by promoting and developing bioscience research projects, and to bring a paradigm shift in dentistry.

With these missions in mind, we are pushing forward the projects to create an advanced field of dentistry, which we name “Frontier Bio-Dentistry”. This means a fusion of traditional dentistry, with its focus on technical aspects, and molecular/cellular biology-oriented oral sciences. Our research has attained the highest level in Japan and our school is one of the top five oral research institutes in the world. Taking advantage of the position as a graduate school belonging to a large university, we are actively engaged in joint research projects with other schools and research institutes, such as Medicine, Engineering, and Frontier Biosciences in our university. In addition, a special project termed “Challenge to Intractable Oral Diseases” was inaugurated in 2011. This project aims to create a new field of predictive dentistry

by promoting research on development of new diagnostic methods for refractory diseases, as well as developing novel preventive methods for dental caries and periodontal diseases through analysis of the relationships between intractable oral diseases and systemic illness at a molecular level.



iPS cells generated from the patient's gingiva which was resected during a dental treatment.



Pharmaceutical Sciences

School of Pharmaceutical Sciences

- Pharmacy
- Clinical and Biological Pharmacy
- Pharmaceutical Sciences

Graduate School of Pharmaceutical Sciences

- Advanced Pharmaco-Science
- Medical Pharmacy



Pharmaceutical sciences is an academic discipline with the mission of helping to develop a bountiful society through comprehensive scientific research into the chemical substances which are related to all kinds of life on earth, and by contributing to the health of humanity through the creation of pharmaceuticals. At human history, many diseases have been overcome by the developments of new medicines and treatments. Pharmaceutical research has mainly contributed to these advances. The School and Graduate School of Pharmaceutical Sciences at Osaka University aim to educate and train future leading pharmacists with a researcher's mind or world-leading researchers to develop health sciences.

Pharmaceutical Sciences to Improve Human and Welfare through Drugs Challenge to Post-Genome Science in the 21st Century

Drugs and human being have long shared a mutually beneficial relationships.

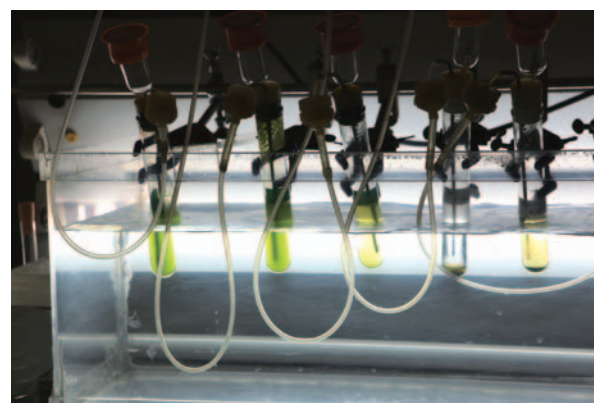
Humans have experienced, chosen and used natural drugs derived from animals, plants and mineral for several thousands of years. The 20th century was the era when fine chemistry developed remarkably on the basis of organic chemistry and physicochemistry, which resulted in the dramatic improvement of technology to produce novel drugs successfully.

In addition to such chemical pharmaceutical sciences, biopharmaceutical sciences are necessary to understand pathological condition and medicinal effects on the molecular level, which help us explain how drugs and their targets interact in the body.

Furthermore, development of biotechnology makes it easy to prepare large amounts of physiologically active substances whose concentration in vivo might be extremely low.

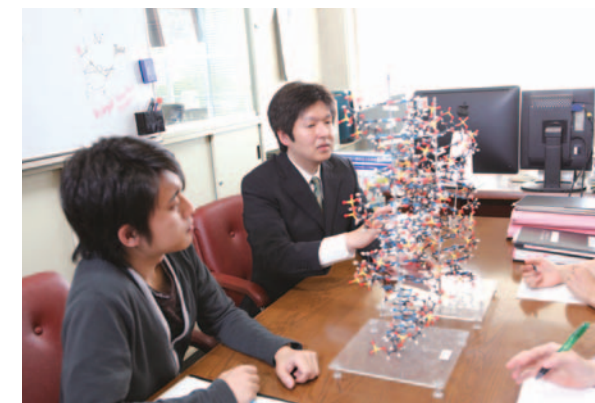
However, there are still many diseases that are difficult to cure with drugs: these intractable diseases include not only cancer and AIDS, but also hypertension, heart disease and diabetes, in addition to senile dementia. People long for specific medicines prescribed towards these inveterate diseases. Since the entire human genome has been deciphered, we will hopefully be able to unveil the function of each gene and molecular basis of pathophysiology.

Such rapid evolution of genome science further assists the revolutionary advancement of drug development. Novel research fields, such as computer-



based molecular design, genome informatics, and drug delivery systems will also accelerate it.

Moreover, pharmaceutical sciences are expected to solve various environmental problems, since chemicals in our environment and ecology are closely related to human health. Thus, the pharmaceutical sciences will be a very attractive study area for coming generations willing to contribute to the health and welfare of human beings. Finally, it should be noted that we started two new Departments in our Faculty in 2006: one, the "Department of Pharmacy" where future researchers in the field of medical pharmacy and pharmacists are educated, and the other, "Department of Pharmaceutical Sciences" that trains specialists who can take active roles in various areas with their knowledge of drugs.



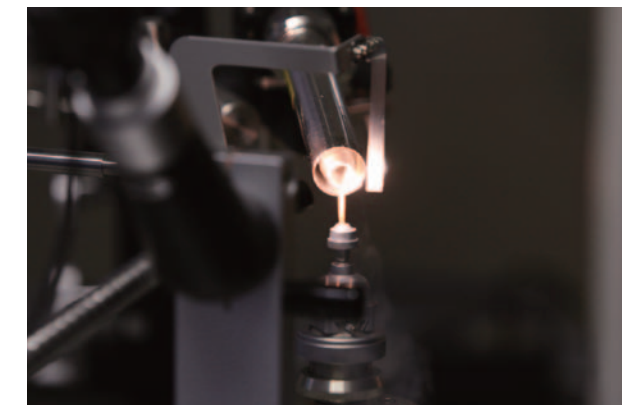
Individual Guidance to Meet the Needs of Students from Abroad Studying with Students from a Broad Range of Nations

Every year there are about 20 students from about ten nations, mainly in Asia, studying at the School of Pharmaceutical Sciences. Over 90 percent of these students are in the Graduate School, pursuing research in their respective fields. Individually supported by Japanese students as tutors, they engage in the research activities as a member of the laboratory.

The supervisors of each student emphasize individual support to meet each student's objectives and wishes.

At the same time, there is a need to provide a common education in an efficient manner, and the School of Pharmaceutical Sciences International Students Committee was formed to handle education programs for the students from abroad.

Supervisors provide advice in Japanese on the



research conducted by students starting at the preparation stage of a thesis. The students present the results of their research in Japanese, and this is followed by a discussion by instructors and students. In this way, they learn how to write their theses and discuss, all in Japanese.

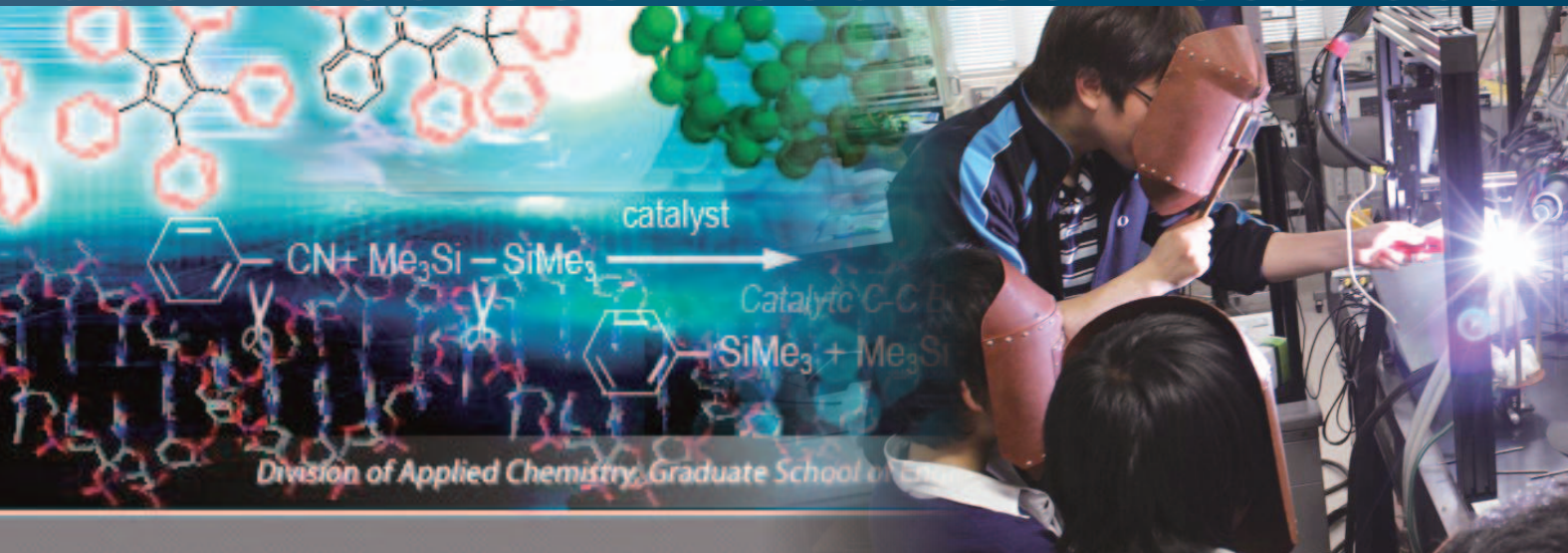
There are also research seminars and discussion held in English by instructors of researchers. The aim is to allow those students, whose ability to use Japanese is limited, to acquire advanced knowledge about pharmacology efficiently through education in English, the international language.

The School of Pharmaceutical Sciences hopes to further expand the circle of international exchange by attracting students from not only Asia, but a broader range of nations.

At present the School has signed exchange agreement, on the faculty level, with the College of Pharmacy of the University of Arizona, in the U.S.A., with which there is an active exchange of students and researchers, and seminars and symposiums held in each location.



Engineering



The School of Engineering of Osaka University has a history of more than hundred years and has grown and sent a number of students into the society who are now playing a leading role in the various fields of academic and commercial worlds in Japan and abroad. The School and the Graduate School have trained and provided students and faculty members with unique personalities and outstanding originality.

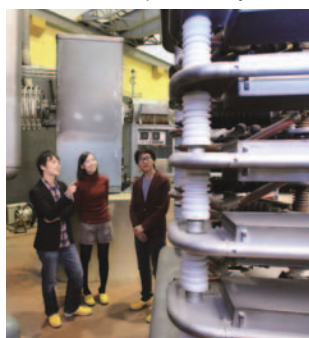
In order to help the School and the Graduate School develop to be a worldly finest class institute, both faculty members are diligently working to achieve the following three visions: (i) Trustworthy education (ii) Unparalleled intellectual achievement (iii) Contribution to society through education and research appreciated by society.

The School of Engineering

The School of Engineering is composed of five divisions listed herein: Division of Applied Science; Division of Mechanical, Materials, and Manufacturing Science; Division of Electronic and Information Engineering; Division of Sustainable Energy and Environmental Engineering; and Division of Global Architecture. These divisions are subdivided into several departments by particular academic field.

In order to educate students for cultured persons, who have a deep expertise and wide range of useful knowledge, various educational programs are planned, prepared, and provided. Fresh students in each division study one year in a general educational course. Then, students join in a department of each division at the beginning of the third semester (Note: The Division of Sustainable Energy and Environmental Engineering is not subdivided.) and study in a more specialized course. When the students reach the fourth year, each student joins in a research group and begins for his or her graduation thesis.

The School of Engineering offers a special English course (the Chemistry-Biology Combined Major Program). After graduation, most of students remain in



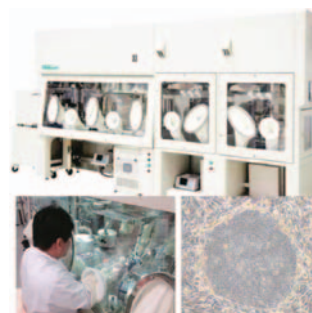
OKTAVIAN, the world's most powerful 14 MeV neutron source facility.

their departments and go up to their related divisions available in the Graduate School of Engineering in Osaka University.

The Graduate School of Engineering

The Graduate School of Engineering aims to educate and produce a creative type of researchers and advanced level engineers who have attained a very high level of specialized knowledge. The Graduate School of Engineering has following ten divisions.

(1)The Division of Advanced Science and Biotechnology provides a wide spectrum of advanced research and educational opportunities in newly developing interdisciplinary research fields encompassing biology, chemistry and physics. (2)The Division of Applied Chemistry aims at cultivating students' creativity and originality and makes them acquainted with comprehensive chemistry and adjacent fields. (3)The Division of Precision Science & Technology and Applied Physics covers interdisciplinary fields of advanced science and technology, such as surface science and technology, device physics, nanomaterials, nanophotonics, nanoelectronics, and nanobioengineering and provides an education



Aseptic cell production equipment for regenerative medicine.

School of Engineering

- Applied Science
- Mechanical, Materials and Manufacturing Science
- Electronic and Information Engineering

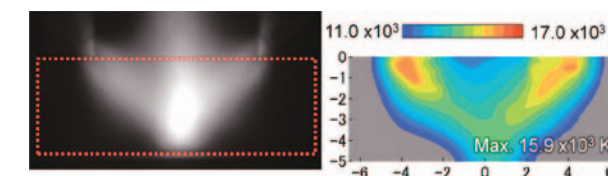
- Sustainable Energy and Environmental Engineering
- Global Architecture

Graduate School of Engineering

- Advanced Science and Biotechnology
- Applied Chemistry
- Precision Science & Technology and Applied Physics
- Adaptive Machine Systems
- Mechanical Engineering

- Materials and Manufacturing Science
- Electrical, Electronic and Information Engineering
- Sustainable Energy and Environmental Engineering
- Global Architecture
- Management of Industry and Technology

to produce graduates who can lead science and technology in academia and industries. (4)The Department of Adaptive Machine Systems has an integrated education-research program to develop advanced products and systems with adaptive intelligence and functions in materials science, device engineering, manufacturing science, mechanical engineering and robotics. (5)The Division of Mechanical Engineering aims at developing technologies, such as robotics, micro-machinery, low-emission vehicle and aerospace engineering, thereby resolving safety, security and human-related issues such as



Tomographic measurement of an axially asymmetric arc plasma

global environment, energy, medical-care and welfare. (6)The Division of Materials and Manufacturing Science offers both basic education and field leading research into the physical and chemical properties of materials, the development of new structural/smart materials, and their processing and recycling, and into advanced design/manufacturing systems. (7)The Division of Electrical, Electronic and Information Engineering conducts advanced and creative research/education in the areas of system engineering, control and power engineering, advanced electromagnetic energy engineering, information and communication technology, and quantum electronic device engineering. (8)The Division of Sustainable Energy and Environmental Engineering is intended to conduct education and research for environmental engineering and nuclear engineering which support the sustainable civilization of human society. (9) The Division of Global Architecture consists of departments of the naval architecture and ocean engineering, civil engineering, and architectural engineering and seeks the technology and design for sustainable development, national land conservation and development of marine resources and transportation. (10) The Department of Management of Industry and Technology aims to cultivate next-generation leaders and/or managers who can cover processes through engineering to business and enhance the company's global competitiveness. By the collaboration with the Graduate School of Economics, the department offers a special course to take double major master degrees of engineering (ME) and business administration (MBA) in 3 school years.

Some divisions have unique programs for international students. There are four English courses (Biotechnology Global Human Resource Development Program, International Priority Graduate Program of "Quantum Engineering Design Course",

International Course of Maritime and Urban Engineering for Master's and Doctor's Degrees, "Erasmus Mundus Course (MAPNET: MAsTERS on Photonic NETworks Engineering)" international program for Master's Degree) . International Student from Asia to seek for Master's degree as career development fits well in an Advanced Educational Program in "Career Development" offered by Department of Management of Industry and Technology aimed at learning Japanese business and culture through case studies and on-the-job type internship programs at Japanese companies.



A synchronous distributed cloud-based Virtual Reality (VR) meeting system for architectural and urban design.

International Academic Exchange and visiting international students in the School of Engineering and the Graduate School of Engineering

As of October 2015, a total of five hundred and thirteen international students have stayed at the School and the Graduate School of Engineering, and the School has established the Inter-Faculty Academic Exchange Agreements with seventy four universities to promote mutual international exchanges. The Center for International Affairs offers supports and advice for international and Japanese students who wish to study abroad. It conducts three Japanese language courses: "Scientific engineering in Japanese for presentations", "Scientific engineering in Japanese for writing research papers", and "Survival Japanese language Course". "English for Engineering" course is also offered to develop students' international communication skills.



Minoh Park Architectural Design Project

Engineering Science



What is the Graduate School of Engineering Science? Where is the Graduate School of Engineering Science going?

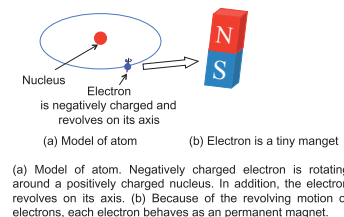
Since its foundation in 1961, our faculty has continuously created interdisciplinary research fields congruent with social needs, and has made a great contribution to academy and industry through research and education, emphasizing our cardinal motto : “Fundamentally developing scientific technology by a fusion of science and engineering will create the true culture of humanity”.

In April 2003, the Graduate School of Engineering Science started its new history. All departments were comprehensively reorganized into three new departments: Materials Engineering Science, Mechanical Science and Bioengineering, and Systems Innovation, in order to adjust and contribute to new frontier and future research fields in the multi- and inter-disciplinary areas. The new, challenging themes of these three departments are “fusion of physics and chemistry”, “fusion of bioengineering and mechanics”, and “fusion of humanity and engineering”, respectively, with a strong faculty-driven orientation in multidisciplinary research and education.

The School of Engineering Science has ten courses and provides a characteristic curriculum based on basic subjects (mathematics, physics, chemistry, biology, informatics) for cultivating wider viewpoints and the flexibility to foster new ideas.

Two possessions of an electron

Two possessions of an electron as an elementary particle, i.e. electric charge and magnetic moment (spin), have been utilized separately in the field of semiconductor electronics and magnetics. In the Professor Suzuki's group in the Division of Materials Physics of the Department of Materials Engineering Science, about 15 students and staff members including 2 foreign students (India, China) and 2 postdoctoral fellows (Korea, Belgium: FY2015) are striving together for exploring phenomena in which both electric charge and spin plays an essential role. Applying such phenomena, they aim to control high speed dynamics of nano-sized magnets (it can be smaller than a virus!) with use of spin current and/or electric field. The students obtain deep understanding in solid state physics via group seminars giving in English and touching most-advanced technology like nano-fabrication and ultrahigh speed measurements. The students also have chances to join a big national research project (ImPACT to develop energy saving memory, for example) and to participate in international collaborations with



India, Korea, Vietnam, Belgium, Netherland, Germany, etc., with the technologies developed by themselves.

Solid Mechanics

Solid Mechanics, which is a mature disciplinary study that is looking at how materials and structures deform under a load, has still been continuously developing from a range of multidisciplinary perspectives; such as Mechanical Science and Engineering, Materials Science and Engineering, Physics, and Chemistry. One of the driving forces in this area is the designing and developing new structural materials with novel mechanical properties for advanced industrial applications. In particular, the achievement of an unprecedented multi-combination of excellent mechanical properties such as high strength, ductility, toughness, corrosion resistance, and high-temperature performance still presents a major challenge. To identify the controlling factors for these mechanical properties which are involved in different physics at different length and time scales, it is essential to develop reliable theoretical models which are required for understanding the nonlinear nature of the multiscale and/or multiphysics phenomena from fundamental principles in solid materials. Professor Ogata's group in the Department of Mechanical Science and Bioengineering has been developing various theoretical/computational approaches ranging from atomistic to continuum to facilitate designing materials.

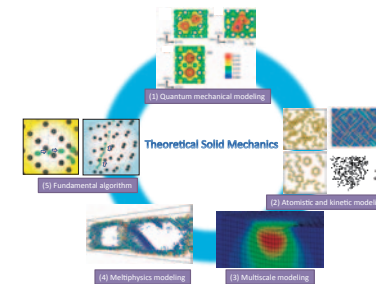
School of Engineering Science

- | | | | |
|-------------------------------------|------------------------------------|-------------------------------|-------------------------------------|
| – Electronics and Materials Physics | – Chemical Science and Engineering | – Systems Science | – Information and Computer Sciences |
| • Electronics | • Chemistry | • Mechanical Science | • Computer Science |
| • Materials Physics | • Chemical Engineering | • Intelligent Systems Science | • Software Science |
| | | • Biophysical Engineering | • Mathematical Science |

Graduate School of Engineering Science

- | | | |
|--|---|--|
| – Materials Engineering Science | – Mechanical Science and Bioengineering | – Systems Innovation |
| • Electron Correlation Physics | • Mechanics of Fluids and Thermo-fluids | • Solid State Electronics |
| • Quantum Physics of Nanoscale Materials | • Mechanics of Solid Materials | • Advanced Quantum Devices and Electronics |
| • Synthetic Chemistry | • Propulsion Engineering | • Optical Electronics |
| • Molecular Organization Chemistry | • Mechano-informatics | • System Theory |
| • Chemical Reaction Engineering | • Biomechanical Engineering | • Intelligent Systems |
| • Environment and Energy System | • Biophysical Engineering | • Mathematical Modelling |
| • Bioprocess Engineering | • Biomedical and Biophysical Measurements | • Statistical Science |
| • Frontier Materials | | • Mathematical and Statistical Finance |
| • Dynamics of Nanoscale Materials | | • Theoretical Systems Science |

The studies include: (1) quantum mechanical modeling to predict the mechanical properties of nanomaterials, (2) atomistic and kinetic modeling to design the mechanical properties of amorphous materials and lightweight alloys with high strength and ductility, (3) multiscale modeling to elucidate the mechanism of temperature- and stress-dependent deformation and strength of solids, (4) multiphysics modeling to design materials with high corrosion resistance, and (5) fundamental algorithms to bridge the time-scale gap between atomistic simulations and the phenomena of interest.



- ✓ Development of rare-metal free white light-emitting diodes based on silicon nanomaterials
- ✓ Development and application of big data analysis based on information-theoretical hierarchy
- ✓ Development of system for real-time sensing of oil/gas spill in deep water
- ✓ Direct observation of channel region of electrical double layer transistors
- ✓ Experimental study on external-field control of crystal chirality
- ✓ Behavior of metal ions at interface of ionic liquid and its application to new devices and materials
- ✓ Bio-fractal formation for understanding the organization of multi-cellular system
- ✓ Development of automated construction system for large tissue with blood vessel-like structure
- ✓ Ultra-sensitive liquid-state NMR by dynamic nuclear polarization using photo-excited triplet electrons
- ✓ Innovative Lab-on-a-Membrane produced by self-assembled materials and quasi-equilibrium
- ✓ Spatiotemporal stress measurement using electrical impedance tomography and its application

Statistical Science

Professor Shimodaira in Division of Mathematical Science is working on statistical science, machine learning, and bioinformatics. His laboratory and neighbor labs constitute one of the largest research groups of statistical science in Japan, covering wide range of research fields including data science and mathematical and statistical finance. In particular, he has been working on a computer simulation method, called bootstrap resampling, for assessing confidence level of complicated data analysis. He proved mathematically a unique theorem bridging the two statistical approaches, called Bayesian and frequentist. The new statistical procedure turned out to be very useful in analyzing DNA sequences, and the five key papers have been cited more than 7000 times world wide, mostly from life sciences. Another challenging topic in his lab is statistical analysis of complex networks. Students from Bangladesh and Vietnam, as well as past students from China, Korea and Canada, play important role in his lab.

Multidisciplinary Research Laboratory System for Future Developments (ΣMRL)

With its rich experience in developing newly emerging interdisciplinary fields, the Graduate School of Engineering Science established in 2002 a unique system called the Multidisciplinary Research Laboratory System for Future Developments (MIRAI LAB) which supports and incubates various research projects which are aimed at the future development of creative research fields as well as the education of young researchers and engineers with global standards of knowledge and expertise in these fields, in cooperation with conventional basic engineering science. Selected research projects in 2014 are:

Worldwide Interdisciplinary Course in English for International Students

The Graduate School of Engineering Science welcomes not only researchers from overseas universities but also students from overseas to whom the Graduate School offers Master and PhD Courses (full-time) taught in English, as well as short-stays as internship students for a couple of months or semesters (FrontierLab program and short-stay program supported by JASSO). For promoting the acquisition of a cosmopolitan outlook and improving the communication ability of Japanese students, all departments provide a series of lectures and colloquia in English and a short-visit program supported by several financial sources such as JASSO and JSPS.

Our School's international activity is carried out by increasing the number of Academic Exchange Agreements with 29 Internationally distinguished Universities in Germany, France, U.S.A., China, and so on; are involved in international collaboration, and a lot of students are studying abroad for short-term with in this tuition-free exchange scheme.

The international students currently enrolled in the Graduate School of Engineering Science represent 19 nations from around the world. The Advisement Office for International Students of the School of Engineering Science offers consultations and support services to the students in their daily life and studies, and holds a variety of events every year.

It is our hope that all students studying here will grow up to be leaders accepted worldwide.

Language and Culture

Graduate School of Language and Culture

- Language and Culture
- Comparative Studies in Language and Culture
- Systems in Language and Culture
- Interdisciplinary Cultural Studies
- Language and Communication
- Education in Language and Culture
- Language and Information Science
- Language and Cognitive Science
- Language and Society
- Area Studies of Language and Culture
- Professional Course
- Japanese Language and Culture



Expanded and Reorganized in 2012

The Graduate School of Language and Culture was established in 1989 as the first graduate school in Japan that specializes in this field. It was expanded and reorganized into seven courses in 2005. In 2007, to better adapt itself to social changes in Japan and the world at large, the School was extended to two divisions. The newly established division, the Department of Language and Society, has its origin in the Graduate School of Integrated Studies in Language and Society, established in Osaka University of Foreign Studies in 1997. In 2012, the School was expanded and reorganized into three divisions, with the new Department of Japanese Language and Culture.

Admission of International Students

The Graduate School of Language and Culture opens its door widely to international students so that it will produce high-level professionals and researchers who can meet the demands of the world of the 21st century, which will no doubt be characterized by intensifying globalization on one hand, and multi-linguistic and multiethnic social environment on the other. International students admitted to the School numbered 163 in 2013, 169 in 2014 and 172 in 2015, with students from Asian countries constituting the majority.



Fusion of Linguistic and Scientific Research, Language and the Human Mind

One of the most important research programs pursued at the Department of Language and Culture is to explore relationships between language and the human mind, with a special reference to cognitive linguistics.

It is also a leading institution in corpus linguistics. It investigates various aspects of language by using computers to process an enormous amount of linguistic data.



Among the related areas of research are theoretical and applied linguistics, communication studies, sociolinguistics, and information sciences of language.

Navigating between Globalization and Localization Pioneer Studies in Language and Culture

An equally important research program of the Department is to investigate the complex relationships between language, culture and society in the present-day world.



The world of today involves a tension between two forces: on the one hand, its culture is becoming more uniform and homogeneous under strong influences of globalization, but on the other hand, multi-linguistic and multi-ethnic tendencies are being accentuated in many parts of the world. In order to face up to these problems, and to explore the productive ways to overcome them, the Department of Language and Culture is engaged in various educational and research programs, such as Language and Culture in International Relations, Comparative Studies in Language and Culture, Transnational Cultural Studies, Gender Studies, and Media Studies.

The main objective of the Department of Language and Society is to explore languages of the world and cultures and societies based on these languages. Its two courses aim to pursue an advanced study in this field, to facilitate students' research, and moreover, to provide them with high professional skills.

Area Studies of Language and Culture focuses mainly on two areas—Asia and Africa, and Europe and America. Faculty specializing in these areas investigate a variety of subjects taking a world-wide and interdisciplinary perspective: foreign languages, cultural representations, language and cultural resources, and languages and societies. The course gives a prominent research opportunity to students



who hope to follow their academic goals.

The Professional Course is intended for English and Chinese teachers currently working in secondary education. It aims to equip teachers with both up-to-date academic

scholarship in relevant fields and communicative fluency in the language they teach.

The course of the Japanese Language and Culture Department comprises research and education in these fields. It encourages students to acquire knowledge and skills for effective performance in academic and professional fields. It also aims to create human resources who can transmit and convey Japanese language and culture. The course offers a wide range of subjects such as a Special Seminar in Japanese Language and Culture.

Toward the Innovation of Education in Language and Culture

Another important activity of the Graduate School of Language and Culture is to explore new frameworks and methodologies for education in language and culture, and to put them into practice. On the basis of the researches mentioned above, the School seeks to provide new perspectives and methods of language education (for example, computer assisted language education and e-learning), and to put them into practice in language classes given to the students of Osaka University. All of the staff members of the School participate in language teaching in the University.



International Public Policy

Osaka School of International Public Policy

- International Public Policy
- Comparative Public Policy



OSIPP Offers a Unique Program Designed to Train Students to Become Policy Experts and Skilled Professionals

The Osaka School of International Public Policy (OSIPP) was founded to facilitate research on issues and policies that transcend national, cultural and any other kinds of boundaries that divide us, and on the actions that will be necessary to preserve the lives and aspirations of people around the world. Another mission of the School is to foster the development of policy experts and skilled professionals who are dedicated to improving public welfare at all levels, from the local to the global. We train our students to acquire cross-disciplinary knowledge and advanced analytical capabilities to resolve complex social problems, in ways that are creative, level headed, and empathetic to the situations of others.

Producing Future Leaders

Knowledge and ideas that go beyond the conventional framework of existing disciplines are indispensable qualities for meeting the demands of a rapidly advancing borderless world, and for solving increasingly complex international problems. It is the mission of OSIPP to train students to become professionals with specialized knowledge and leadership skills to meet these demands, and to carry out path-breaking interdisciplinary research. OSIPP brings together academic staff specializing in both theory and applied knowledge, as well as representatives from international organizations, government, the media and private think-tanks, in order to educate students and researchers to become active leaders in the international arena. In addition to core courses where students obtain a basic knowledge and understanding of methodologies, and seminars on more concrete topics, OSIPP offers classes which focus on providing students with hands-on learning experience.



Examples of such hands-on classes are a negotiation class where students actually practice negotiation skills through case studies, a class where project implementation and leadership in organizational operations are addressed both theoretically and practically, and a class for obtaining internship experience.



Flexible Curriculum

Two majors are currently offered: International Public Policy and Comparative Public Policy.

The International Public Policy major is committed to research and education covering public policy matters in the international community, such as law and diplomacy, international politics and security, human rights, international finance, trade and economy, development and environmental issues.

The Comparative Public Policy major focuses on research and education relating to a comparative analysis of the international community, as well as policy issues that are relevant to Japan's political, legal, and economic systems. Students, regardless of their major, are free to choose their supervisor and courses from among the array of professors and courses from either major. Credit exchanges with other graduate schools of Osaka University and with other universities (universities who are party to academic exchange agreements) are also available. For the OSIPP entrance examination, students are required to demonstrate English proficiency, submit a written research proposal, and be interviewed by faculty members. Enrollment for the Master's and Ph.D. programs is held in April, although Ph.D. students are also permitted to enter in October.

Academic Staff

The faculty members of OSIPP are active in the academic world and renowned in their respective fields.



They have diverse academic backgrounds, such as economics, international politics, law, foreign studies, public policy and sociology. Many of them have work experience at international organizations. OSIPP not only works closely with the Graduate School of Law and Politics, the Law School, the Graduate School of Economics and the Institute of Social and Economic Research of Osaka University, but also actively invites professional staff from institutions outside the University, such as international agencies and academic institutions overseas. Most faculty members are able to give lectures in English.

Diverse Students and Their Career Options

OSIPP takes on students from a variety of fields, backgrounds, ages and research interests. In addition to students who are fresh from Osaka University's undergraduate programs, there are those with vocational experience who seek to obtain a higher level of expertise, and those from other domestic and overseas universities. About one-third of OSIPP students are from overseas. Students are highly motivated, possessing an acute sense of awareness of the issues that they confront, and have a clear sense of purpose. They take an active interest in fieldwork, internship programs, NGO/NPO activities, and opportunities to study abroad.

OSIPP graduates pursue their careers in a variety of areas: academic institutions, international organizations (United Nations agencies and the World Bank, for example), central government ministries and government-related agencies, think-tanks, mass media, foreign-affiliated companies and private corporations. There are also many graduates who study abroad, or work for non-governmental and non-profit organizations.



Information Science and Technology



Advanced information society rapidly taking shape toward sustainable social life —

Research and education in “computer science” and “information technology” play an important role to enrich our social life. Ubiquitous information in nano- and micro-materials, human bodies, and even virtual spaces has been efficiently utilized in our social life by leveraging the state-of-the-art Big Data processing and AI (Artificial Intelligence) technologies. The application fields of information science and technology grow rapidly, and now there are strong demands in medical, disaster prevention, and social fields.

Graduate School of Information Science and Technology

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|---|---|--|
| <ul style="list-style-type: none"> – Pure and Applied Mathematics <ul style="list-style-type: none"> • Combinatorics • Applied Geometry • Discrete Structures • Applied Analysis • Mathematical Science • Computer Assisted Mathematics – Information and Physical Sciences <ul style="list-style-type: none"> • Operations Research • Nonlinear Systems, Modeling and Optimization • Information Photonics • Systems Engineering • Architecture for Intelligence – Computer Science <ul style="list-style-type: none"> • Algorithm Engineering • Software Design • Software Engineering • Supercomputing Engineering • Intelligent Media Systems | <ul style="list-style-type: none"> – Information Systems Engineering <ul style="list-style-type: none"> • Integrated System Design • Information Systems Synthesis • Integrated Systems Diagnosis • Dependability Engineering • Integrated Media Environment • Advanced System Architecture – Information Networking <ul style="list-style-type: none"> • Advanced Network Architecture • Intelligent Networking Systems • Information Sharing Platform • Mobile Computing • Ubiquitous Network • Cyber Communication – Multimedia Engineering <ul style="list-style-type: none"> • Multimedia Data Engineering • Information Security Engineering • Big Data Engineering • Business Information Systems • Applied Media Engineering • Multimedia Agent Systems | <ul style="list-style-type: none"> – Bioinformatic Engineering <ul style="list-style-type: none"> • Genome Information Engineering • Metabolic Engineering • Bio-System Analysis • Symbiotic Network Design • Human Information Engineering |
|---|---|--|

Research Topics:

The graduate school aims to advance the fields of information and network technologies by providing high-quality research and education programs. One of the mottos of our school is the fusion of life science and information technology, where advanced information science and technologies are being developed by learning from the facts in the real organisms; in other words, we aim to explore “bio-inspired information technology.” Toward achieving this goal, we conducted the Global COE program entitled “Center of Excellence for Founding Ambient Information Society Infrastructure,” the Formation of Innovation Centers for the Fusion of Advanced Technologies and promoted several projects. The projects include the Information and Neural Research Project at the Center for Information and Neural Networks, which has been jointly established by Osaka University, NICT (National Institute of Information and Communication Technology), and ATR (Advanced Telecommunications Research Institute International).

The establishment of an ambient information society is a major goal of our school. In the ambient information society, not only can the users access information in a flexible manner, as in the ubiquitous information society, but also can the environment’s computers provide desired information to the users according to their circumstances (i.e., current time, place, and personal preferences). For example, information systems in such a society could provide guidance to the users to help them avoid dangers and hazards. To realize such a society, sophisticated technologies are needed to tackle the expected technological challenges. As a result of five-year initiatives, the Global COE program developed a set of ambient information environment prototypes, i.e., context-aware ambient information accessing, ambient office, and communication assistance by ambient room. Now we are working toward Humanware Innovation by combining the knowledge of IT, bio, and robotics fields by leveraging the observations and results obtained from the Global COE program.

Education Principles:

The graduate school offers curricula with the following strengths:

- (1) The curricula broadly cover studies from math-related basic theories to advanced application technologies. They also include various information media as the target, covering the range from hardware and software to the content itself.
- (2) The curricula give full attention to the human interface based on the advanced IT, such as multimedia engineering, and bioinformatics engineering.
- (3) The curricula fully address various social issues inherent in the cyber society supported by the advanced information networking technologies.

Based on the above academic strengths, the graduate school coordinates the “Humanware Innovation Program” in cooperation with Graduate Schools of Frontier Biosciences and Engineering Science under MEXT Leading Program in Doctoral Education. We foster leaders who can achieve a paradigm shift toward productive and sustainable directions by bridging information science, life science, and cognitive science and cultivating new arenas of research.

The school also presides over a nation-wide project named “Education Network for Practical Information Technologies (enPiT),” in which 15 universities are cooperatively involved in four sub-projects, enPiT-Cloud, enPiT-Security, enPiT-Emb, and enPiT-BizApp.

To foster the next generation of international leaders, our school encourages our master and PhD students to participate in overseas internship programs. The graduate school recently opened a new course of Information Technology Special Course in English (ITSCE). The goal of the ITSCE is to nurture the students from all over the world, by providing them top-quality knowledge and research skills in information science and technology fields in English language.

Frontier Biosciences

Graduate School of Frontier Biosciences – Frontier Biosciencesics

- Nanobiology
- Organismal Biosystems
- Special Research Promotion Group
- Biomolecular Networks
- Neuroscience
- Biomedical Engineering
- Integrated Biology
- Biophysical Dynamics
- Collaborative institutes (Immune Regulation)



Life is much more than just an assembly of its components. Their dynamic interactions are crucial for many complex systems like our genetics, mechanisms of development, immune system, and brain.

Our graduate program looks to give greater understanding to these systems by bringing together researchers from biology, medicine, physics, engineering, and other fields with the greater aim of producing the leaders in the next generation of life science research. To facilitate the research and education in our school, we have started extensive collaborations with two outstanding research organizations, National Institute of Information and Communications Technology (NICT) and Institute of Physics and Chemistry (RIKEN).

Fusion of Diverse Disciplines from Nanobiology to Brain Science

Graduate School of Frontier Biosciences is a new graduate school dedicated to advancing forefront of life sciences.

Established in April 2002, the school has assembled, from within and outside Osaka University, top-level researchers and educators who are experts in a wide variety of disciplines, including medicine, biology, physics, and engineering. The creation of the new department is based on our strong belief that humans and animals are not merely a simple aggregate of genetic materials, molecules, and biological structures. It is rather an ever-changing complex dynamical system, whose understanding necessitates a true interdisciplinary systems approach. Graduate School (and Department) of Frontier Biosciences consists of 6 main groups of laboratories, and affiliated laboratories. The graduate program in Frontier Biosciences offers a unique 5-year intensive training culminating in a doctoral degree upon successful completion of the program. Our goal is to nurture students and scientists in our active research environment so that they become fully equipped for taking biosciences to the next height.

The school approaches its research by seeing life as an ever-changing complex dynamical system whose understanding necessitates a true interdisciplinary systems approach. From an education perspective, the FBS offers its students and scientists in an active and fully resourced research environment so that they are prepared to take the life sciences to its next height.

All life is composed of basic biological elements like nucleic acids, genes, proteins, and membranes. Over several decades, our understanding of the life sciences has greatly advanced by bringing together an assortment of different fields including genetic engineering, molecular biology, physiology, and medicine. The next stage is to clarify how these different elements dynamically interact and change to establish the diverse and complex function seen within all biological systems.

For this, a new framework for life sciences research is needed. The FBS has broken this task into three: understanding the function of individual biological systems; understanding the basic properties of the elements involved in these systems; and clarifying how the environment helps determine function. To achieve this, the FBS puts an emphasis on quantitative fields like physics and engineering, along with traditional biological fields. The school, therefore, has brought in the best minds from the life and physical sciences to create a new standard for research and education.

In this regard, the school is composed of seven core research themes, with several other complementary ones. The Ph.D. program, which normally takes five years, is designed so that a student becomes proficient in different fields ranging from medicine to engineering in order to become a leader for the next generation of researchers. Like our teaching staff, we recruit students with undergraduate (and sometimes graduate) backgrounds of many different fields. To ensure multidisciplinary training and research, each student chooses multiple advisors from different disciplines to provide a broad training in diverse research areas, although their research is concentrated in one laboratory. We are also emphasizing collaboration with industry to help prepare our students for careers outside the university by interacting with industrial researchers, developing various industrial liaison programs, and soliciting endowed chairs.

The FBS aims to an international leader in the life sciences in two ways. First and foremost, it seeks to understand how dynamic interactions between different elements and environments lead to life. This shall be achieved by our second goal, which is to develop new techniques and technologies to accomplish this first goal. To do this, we need a mix of different people, both in terms of education and cultural backgrounds, to foster an ambitious and collaborative scientific environment.

Law School

Law School - Legal Practice



Osaka University Law School (OULS) is designed to educate professional lawyers. The school not only provides profound legal instruction to its students, but also educates them for broader attainments in society and culture, for working ethically and enriching humanity. Furthermore, OULS emphasizes the training of business lawyers with profound knowledge of culture, society, ethics, and humanity.

One of the Nucleus Educational Institutions for Japan's Judicial Reform

The increasing number of lawsuits in Japan shows that the Japanese have come to rely on legal procedure to settle their disputes as much as the Americans. In addition, the complexity and diversity of these actions necessitate legal professionals playing an important role. Despite the increasing demand, lawyers who have enough ability and expert knowledge are in short supply, and such shortage has caused delays in many suits. To supply sufficient quantity and quality of legal specialists to meet the diversifying demands of the society, Osaka University Law School (OULS) is designed to educate professional lawyers.

Fairness and Diversity

Since its establishment in 2004, OULS has not only provided profound legal instruction to its students,



but also educated them for broader attainments in society and culture, strict ethics and rich humanity. The number accepted each year is 80. A part of them belong to a 3-year study course while those who have already earned the law degree belong to a 2-year course. For admission, there is no restriction on age, profession, and knowledge of law. Whether an

applicant has graduated from the Law Faculty or not, any university graduate can apply for admission.

Curriculum Designed for Systematic Learning

The curriculum is composed of four courses: “Basic Law Courses”, “Basic Courses in Legal Practice”, “Fundamental Legal Study and Adjacent Courses”, “Advanced Courses”. The “Basic Law Courses” provide students with the fundamentals of law, such as constitutional law, administrative law, civil law, criminal law, commercial law, civil procedure law, and criminal procedure law. The “Advanced Courses” and the “Fundamental Legal Study and Adjacent Courses” give students diverse knowledge, which has not been covered by the “Basic Law Courses”. The “Basic Courses in Legal Practice” are designed to put the theory into practical use. Students can study each category systematically. Moreover, the curriculum, throughout the study of the basic subjects, is well designed to provide enough legal knowledge to those who study law for the first time. Subsequently, abundant practical education will improve the student's legal skills.

Educating Business Lawyers

The most noteworthy characteristics of the curriculum of OULS are the following: All lessons are conducted by the Socratic Method in small classes. Basically, all classes are limited to less than 50 students. These classes are not simply one-way lectures, but interactive discussions between professors and students (Socratic Method). Therefore, our lessons have high efficacy in legal training. Besides, in order to introduce the latest outcomes of study into the education, OULS cooperates with the Graduate School of Law and Politics of Osaka University and Osaka School of International Public Policy. OULS emphasizes the training of business lawyers. Taking advantage of the geographic feature of being located in one of the most prosperous commercial areas in Japan, the School arranges various subjects requiring solution of legal matters, which occur during the foundation, operation, and dissolution of a corporation; for example, corporate law, tax law, law on corporate reorganization, intellectual property law, and international transaction law.

In addition, to satisfy the demands of a “legal-



oriented” society, OULS encourages students to acquire professional knowledge. In order to provide practical training, the School has internship programs in law firms or in legal departments of corporations.

Being in the Spearhead of the New Era

Outside the classroom, ALEC—Center of OULS (Advanced Legal Education and Career Center) has some projects for grappling with up-to date matters. Every year, we hold symposiums and guidance on forefront issues of lawsuits or disputes. These projects can help students to decide on their own direction as a legal expert.

Success in Bar Exam and in Business

The new bar exam for law school graduate students has been planned to be less competitive than the long-established exam. It is assumed nevertheless to be highly competitive. Succeeding in the new bar exam is, of course, our primary goal.

However, OULS aims to provide students with sufficient legal knowledge and skills whatever legal profession they might choose. Therefore, the students' successful future is the School's final goal.

United Graduate School of Child Development, Osaka University, Kanazawa University, Hamamatsu University School of Medicine, Chiba University and University of Fukui

United Graduate School of Child Development, Osaka University, Kanazawa University, Hamamatsu University School of Medicine, Chiba University and University of Fukui - Child Development

- Developmental Neuroscience (Osaka University)
- Socio-Cognitive-Neuroscience (Kanazawa University)
- Neuropsychological Development and Health Sciences (Hamamatsu University School of Medicine)

- Cognitive Behavioral Science (Chiba University)
- Developmental Higher Brain Functions (University of Fukui)



One of the most important missions of our society is “To grow up and keep Children’s mind in good health.” However, children face a lot of dangerous situations; Increase of children suffering for mind problems such as developmental disorder, major depression and eating disorder.

To struggle with the problem, Osaka University, Kanazawa University, Hamamatsu University School of Medicine, Chiba University and University of Fukui have united and established the United Graduate School of Child Development, which provides integrated educational platform of arts and science, with the purpose of “nurture of child specialists with diverse backgrounds” and “elucidation of causes of the child’s mind and developmental diseases to develop new remedies for them.”

Finally, we promise to contribute for “Healthy developments of children” by the achievement of our missions; (1) to cultivate researchers specialized in “The Child’s Mind and Developmental Brain Science,” a novel research field, (2) to cultivate specialists with an interdisciplinary background in order to meet the social requirement, and (3) to create tight networks between relevant specialists.

Mental Health of Children is at a Crisis Point

The biggest challenge of present-day Japan in a time of low birthrates is how to raise children with sound minds. The reality is, however, that children’s mental health is at serious risk of being damaged. Juvenile crimes caused by children with mental damage, suicidal cases from being bullied, and the number of children with developmental disorders such as pervasive developmental disorders (PDD) or attention-deficit hyperactivity disorder (ADHD) are



increasing. Psychiatric disorders like major depression and eating disorders are increasingly common among younger people, and elementary school cases with schizophrenia are reported at a high level.

Development of Human Resources in a Matched Manner to Social Requirement

In addition to the absolute shortage of the number of specialists in child mental health, these specialists, either psychologists, nurses/health nurses or teachers, deal with problems utilizing their own training and educational backgrounds. There is no formulated way for treating problems of children’s minds; these specialists often lack enough medical knowledge.

In order to overcome these problems, it is most reasonable that we try to re-educate these specialists with



an integrated field of study consisting of brain science, psychology and education. However, a huge obstacle

for this education in a given institute is the complexity of mental health and the diversity of specialists required.

This is why Osaka University, Kanazawa University and Hamamatsu University School of Medicine have united and established the United Graduate School of Child Development in 2009, which provides integrated educational platform of arts and science. Our faculty has executed several education and researches with the medical background at the aim of “nurture of child specialists with diverse backgrounds” and “elucidation of causes of the child’s mind and developmental diseases to develop new remedies for them” with invited researchers from the field of social psychology and special support education. In 2012, Chiba University and University of Fukui joined our graduate school to promote our education and research.

The purposes of our reformed graduate school consisted of 5 universities are (1) to cultivate researchers specialized in “The Child’s Mind and Developmental Brain Science,” a novel research field, (2) to cultivate specialists with an interdisciplinary background in order to meet the social requirement, and (3) to create tight networks between relevant specialists.

The Long-Standing Tradition and Achievement of our Universities

Osaka University, Kanazawa University, and Hamamatsu University School of Medicine are highly rated by long-standing achievements in brain research, the tradition of communicational education in the clinical setting, and the world’s most advanced products about clinical psychiatric research, respectively. Chiba University, newly joined



institute, is the only medical facility in Japan where the science based cognitive-behavioral therapy is treated for Child’s mind disorders and University of Fukui, another newly joined institute, is very famous for the education and research about the Child’s depression and the family support for children. The United Graduate School of Child Development was established by the close alliance and cooperation of these five academic institutes, which are located in the metropolitan areas of Kanto, Kinki, Hokuriku, and Toukai districts.

In order to get the best of these five universities, to integrate brain research (utilizing molecular biology, neuroimaging and electrophysiology) and sociopsychological method (based on large-scale epidemiological survey), and to investigate how to make a tight network by which specialists cooperatively care for problems of child mental health, we have created five research horizons: Psychological Support for Child Development (Osaka University), Human Communication Science & Intervention (Kanazawa University), Social Services for Developmental Disabilities (Hamamatsu University School of Medicine), Mental Health Support & Early Intervention (Chiba University) and Psychosocial Support for Nurturing (University of Fukui). We aspire to the dynamic expansion of our activities from these five bases to all over Japan.

3-year Doctoral Course is Started for the Next Leap Forward

The goal of the United Graduate School of Child Development is to cultivate and mentor specialists of child mental health with diverse backgrounds and leading-edge researchers on “the child’s mind, developmental brain and its disturbance” into indisputable leaders via an interdisciplinary field consisting of medicine, psychology and education.

Therefore, admission to our 3-year doctoral graduate school will require students to have obtained a master’s degree in psychology, education, health sciences, nursing science, or social welfare; otherwise, students are required to have comparable work experience as a medical doctor, school teacher, school counselor, nurse, speech therapist, or clinical psychologist.

By graduation, students are expected to have jumped from a specialist in their own background to multidisciplinary leaders.



Why OSAKA UNIVERSITY?

Voices of 15 International Students



The campuses of Osaka University are located in a very peaceful and nice area, whereas Osaka itself is an ever-changing metropolis that's never boring, no matter what your interests are. The teachers are great and very approachable for an international student.

As I became a member of the Osaka University International Students Association and the Brothers and Sisters Program in 2013, I've never had any problems at all. In my spare time I am always at the "club rooms," the Information Room for International Students, and spending time with friends, so I'm never alone, and if I have questions, there's always someone, a teacher or a fellow student, there to help me.

Antonia Helena PERSSON RAMSTEDT

School of Letters (3rd Year Bachelor's) Sweden

After I started studying at Osaka University, I realized the school environment is very nice and educational information is easy to retrieve. The professors are friendly and approachable when students need support. I enjoy the city facilities and the kindness of the local people. I don't feel any inconvenience as a foreigner here. I love Osaka. I try to devote as much time and energy as possible to my research.

It is not easy to study in a foreign environment, but I fully enjoy this learning experience at Osaka University. If you want to study at Osaka University, just set your mind to study hard before coming. You will have a lot of support systems to achieve your goals.

Yu-Chun TSAI

Graduate School of Human Sciences (1st Year Master's) Taiwan



The reason why I chose Osaka University was that it offers a course in Japanese language (linguistics) and bilingual studies. Osaka is a perfect blend of modern technology and cultural heritage. And Osaka dialect, "Osaka ben," is really cool and interesting; it makes me fall in love with the Japanese language every time I hear it. Many people ask me if I ever felt "homesick" after coming to Japan, and my answer is "no." Kind and helping people all around me and a lovely host family I met through the Osaka University Host Family Program make me feel at home. Studies can be hectic sometimes, but it is not very difficult to manage studies, a part-time job and club activities.

Mitali Nitin SHAH

School of Foreign Studies (2nd Year Bachelor's) India



Name
School/Graduate School at Osaka University (Grade)
Home Country
(as of December, 2015)

I came to Japan with a scholarship from Japanese government. People in Osaka University taught and shared with me many things. I have very nice and kind professors who help me shape my academic life greatly.

I would not say that my life as a foreign student who had no background in Japanese at Osaka University is easy, because to me it was not. But the 4 years of my undergraduate life were wonderful. I had fun and made friends. And that wouldn't happen without help. One of the most wonderful things in Osaka University is the International Student Consultation Room. Remember to talk to people. Help is all around. And of course, good coincidences and chances, too!

Supakan NIMMANTERDWONG

Graduate School of Law and Politics (1st Year Master's) Thailand

I study in Toyonaka campus, which is so lively, every day you can hear and see students singing, playing instruments and dancing. There are many clubs and activities you can join. I really like how I can both study and have fun here.

My dream for the future is to continue living in Japan even after graduation. I would like to find a job and work here, using skills that I have learned at Osaka University, while continuing to study the Japanese language and getting to know Japanese culture even more deeply. I completely fell in love with this country and its people. If you decide to study at Osaka University, you will definitely not regret it!

Ana TAKASMANOV

Graduate School of Economics (1st Year Master's) Bosnia and Herzegovina



I chose Osaka University because I knew that Osaka University was strong in the sciences. People here are really warm and down to earth, including the shop lady in the curry udon shop near my apartment. Osaka is a place that I can call my second home.

I joined the Table Tennis Club which allowed me to interact with Japanese students from different disciplines. I also contributed back to this community by voluntarily teaching English conversation classes to Japanese students in the Graduate School of Science.

Getting used to a new culture and breaking the language barrier may seem very daunting at the beginning but stepping out of your comfort zone is truly rewarding and worth it.

Kegan Jiang Hao LEE

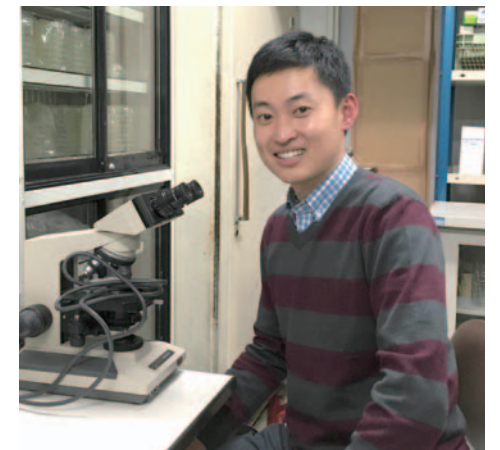
Graduate School of Science (2nd Year Master's) Singapore

One of the most important factors which made me decide to choose Osaka University is the University Libraries with good study environments.

The area of my research is health promotion, which is a new field of health science, where educators and researchers with leadership are highly sought after. I want to work towards the advancement of this field. Osaka University is a great place to study while living safely and enjoying student life. If you are not comfortable with your Japanese, keep working on it, and once you get over the language, it will make your life here much easier and more fun.

Shuai GONG

Graduate School of Medicine (1st Year Master's) China



The Graduate School of Dentistry, Osaka University has a well-organized system for student's research. When I travelled to Osaka a few years ago, the people were kind and the food was really delicious so I had a very good impression of the City of Osaka.

Nara, Kobe and Kyoto are nearby Osaka, which are really famous for their sightseeing places in Japan. You can refresh yourself while travelling around those cities and get a new energy that will make you concentrate on your studies again.

My dream for the future is to become a specialist in orthodontics and to make beautiful smiles for my patients. I would like to share my experience in my country and volunteer, contributing with my specialty.

Donghoon LEE

Graduate School of Dentistry (2nd Year Doctoral) Korea



In Osaka University, there are many well-structured teaching systems, not only with outstanding academic achievements and professors, but also with international scientific and prognosis investigation. I spend most of my time doing experiments in the lab. In my spare time, I enjoy socializing with people and engaging in activities which are held by the Osaka University International Students Association.

I am very interested in pharmaceutical research and development (R&D) for the aged, which aims to slow down aging of skeletal muscles and improve the quality of their lives, so after my graduation, I hope to work in a pharmaceuticals company where I could participate in pharmaceutical R&D.

Lidan ZHANG

Graduate School of Pharmaceutical Sciences (1st Year Master's) China

The reason I chose to continue my education at Osaka University is because the opportunities provided by the "Advanced Education Program for Career Development of Foreign Students from Asia" for scholarships and academic excellence will look great as I move forward in my future career in Japan. The course is very applicable and relevant to current trends as well. The facilities are also very good. There are Japanese classes ranging from the basic levels to the advanced levels. In my major, there are many lectures related to management which gives me a basic knowledge of starting a business that I could adapt for my business in the future. And there are also a lot of opportunities for having fun as well. If you are considering studying in Japan, I would highly recommend you to apply for Osaka University.

Lanurak PHONGNUMKUL

Graduate School of Engineering (2nd Year Master's) Thailand



I chose Osaka University because of its outstanding achievements and excellent members. Many graduate schools promote multidisciplinary learning schemes for applied mathematics. When I came here, I also found that Osaka University was full of open-minded, friendly and polite people. Academic staffs and research facilities are excellent and really meet world-class standards. The administrative staffs are very active and helpful as well. My research topics are in Operations Research involving multidisciplinary knowledge. I do hope that my work has made some contributions especially to the field of conflict resolution and mechanism design.

Puchit SARIDDICHAINUNTA

Graduate School of Engineering Science (3rd Year Doctoral) Thailand



Osaka is a convenient city which has an international airport and easy access to some of Japan's best cultural spots such as Kyoto, Nara or Kobe. Osaka University is an excellent environment for linguistics and is one of the best in the Kansai region of Japan. Each of its three campuses has its unique atmosphere; Toyonaka campus has full of young power. Suita campus has advanced experimental facilities. Minoh campus has a quiet environment for studying. I participate in a hiking group and a Japanese class, which I learned about with help from the Center for International Education and Exchange of Osaka University.

In future, I want to be a translator who not only acquires languages but also who understands the meaning of the underlying culture.

Juanjuan LIU

Graduate School of Language and Culture (2nd Year Master's) China

Osaka University offers everything I was looking for – a top-notch international public policy department with faculty conducting research in a variety of topics ranging from law to economics. It is one of the top-ranking universities worldwide situated in a cosmopolitan urban setting which is not as hectic and expensive as Tokyo.

I would like to either work for the research department of an international organization whose work is focused on fostering human development and economic growth or pursue an academic career with the same focus. I am concentrating on the development-enhancing aspects of cross-border practices such as offshoring and trade to make the world a more prosperous, peaceful and transparent place.

Yani KARAVASILEV

Osaka School of International Public Policy (2nd Year Doctoral) Bulgaria



Osaka University trains us to unearth creative solutions to challenges, organize our experiences in the community for the purposes of both engagement and reflection, and socially navigate among diverse personalities and power differences that will help us to succeed in diverse situations in our future research career. From this rich student period of personal growth I will acquire knowledge in information and communication technology and an identity as a world-class researcher, and the skills to independently navigate life in a foreign culture as well.

So why don't you come to Osaka University? Come to join us to study together and let's develop as spiritually rich individuals.

Morsalin Uz ZOHA

Graduate School of Information Science and Technology (2nd Year Doctoral) Bangladesh

After studying in Algeria, France and the USA, I wanted to do my PhD in a university with an advanced educational system and a laboratory with a top-level reputation. This is why I chose Osaka University. Some of the most important things I learned in Japan and in Osaka University are dedication to science, discipline and hard work. As I aspire to become a professor in future, these crucial qualities will help me to reach my career goal and pursue my dreams whatever country I settle in. Studying in Osaka University is a great opportunity for young students to explore a different culture. I would advise you to be prepared to face the language barrier and to fully dedicate your life to your studies.

Lynda LAMRI

Graduate School of Frontier Biosciences (3rd Year Doctoral) Algeria



University Libraries



The Osaka University Library has one of the largest university library collections in Japan. The Library holds more than 3.9 million volumes and 72,000 periodical titles. We also provide electronic materials for research and education such as e-journals (15,225 titles), e-books (18,324 titles), and databases (more than 40 types). Students and faculties can access these e-resources in campus and off campus.

The Library works on digitalization of rare and valuable materials collections, which include Kaitokudo Collection and Akagi Collection. Kaitokudo is one of the two old schools that the spirit and roots of Osaka University reach back to. Some of the collections are available online.

The Library offers the digital archive of research results of Osaka University, called OUKA, the Osaka University Knowledge Archive. We provide over 49,000 items, including degree theses and university journals, in OUKA.

We have "Learning Commons" in each of our four libraries (Main Library, Life Sciences Library, Science and Engineering Library, and International Studies Library). Learning Commons is an area which brings together library services, IT services and group learning. Students and faculties can discuss and collaborate there, not only merely reading alone. Library staff and Teaching Assistants are always standby to provide support for students. In 2015, group discussion space has been extended for active learning.



Main Library

The library on the Toyonaka Campus is one of the largest national university libraries in Japan. It has a total area of 18,930 square meters, over 1,600 seats, and over one million volumes of printed materials.

The library plays a central role in providing research information. It serves the educational needs of all fields and the research needs of schools located on the Toyonaka Campus: letters, law, economics, science, and engineering science.

The library has various spaces to support university member's study and research: group study rooms, private study rooms, computer area, Silent Zone, Learning Commons, and Global Commons. The Global Commons area was opened in November 2012 to provide collaborative learning space aimed at promoting understanding between different languages and cultures. It is equipped with the world news browsing system, electronic blackboards and other convenient facilities.

Life Sciences Library

The Life Sciences Library on the Suita Campus was established in 1992 as a general library for biosciences such as medicine and biology. It plays a central role in the provision of academic information in biosciences. Since 1977, it has been serving as a designated library for the National Center for Overseas Periodicals (NCOP). Currently, it has about 18,800 journals, including about 1,000 current titles of foreign journals.

Science and Engineering Library

The Science and Engineering Library on the Suita Campus was established in 1970 and the East Building was annexed in 1986. It contributes to the education and research activities of the Graduate School/School of Engineering, the Graduate School of Information Science and Technology, and other related research institutes.

The Learning Commons was opened in 2009. It provides seamless access to scholarly print and electronic resources. It also has meeting tables and whiteboards for group discussion. In order to support students-led activities, library staff and Teaching Assistants are available for consultation. The library also provides enough space for quiet study.

Presently, the library holds about 416,000 books and 7,400 journals on science and engineering.

International Studies Library

The International Studies Library was established in 1921 as Osaka University of Foreign Studies Library. The library was renamed and reorganized after the merger of Osaka University and Osaka University of Foreign Studies in October 2007.

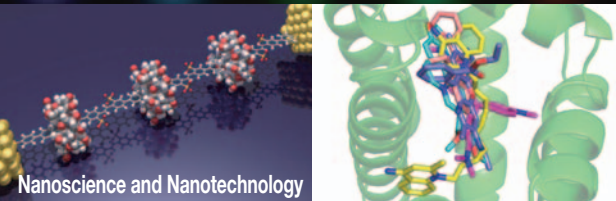
Holding an abundant collection of about 610,000 volumes, it is one of the nation's top libraries in the fields of international studies and linguistics.

The Learning Commons "LUX" was opened in April 2012. The Audio Visual Library, which had been in a different building, was relocated to the 4th floor of the library and the Audio Visual Commons was also opened next to it in April 2015.

Research Institutes



Biological and Molecular Sciences



Nanoscience and Nanotechnology



Advanced Material and Beam Sciences



Information and Quantum Sciences

▲ The Institute of Scientific and Industrial Research



▲ Institute of Social and Economic Research

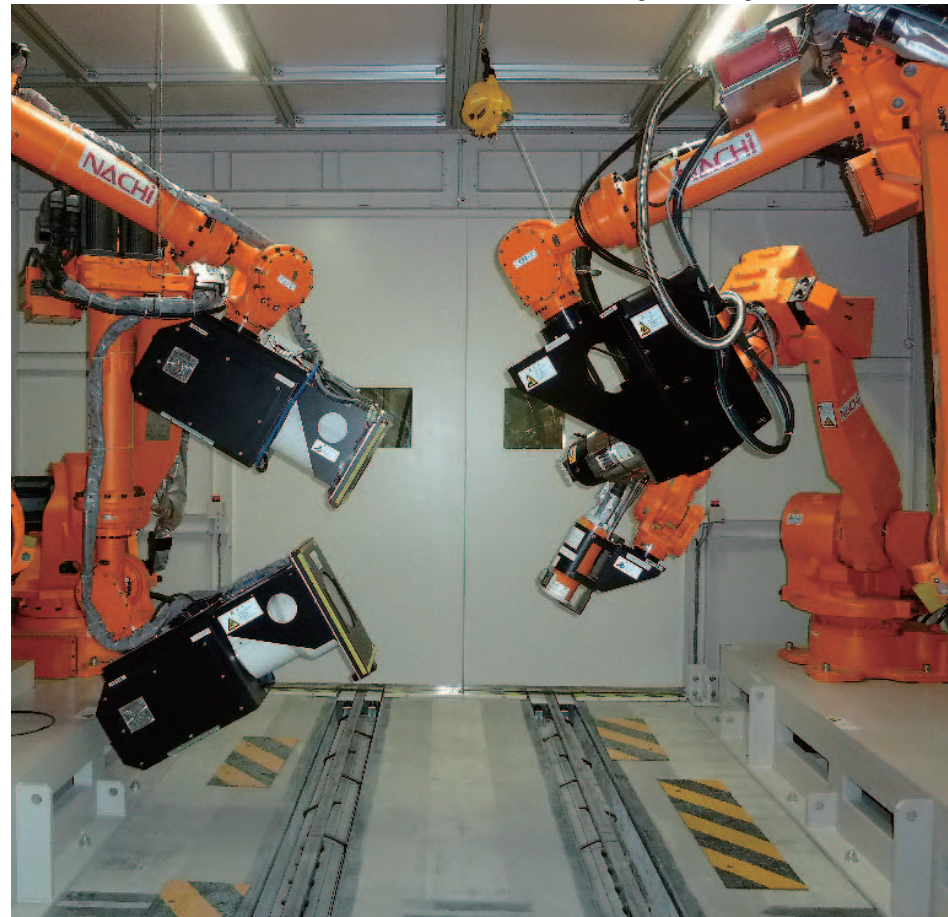


▲ Institute for Protein Research



▲ Research Institute for Microbial Diseases

▼ Joining and Welding Research Institute



Research Institute for Microbial Diseases

www.biken.osaka-u.ac.jp/english/

The Research Institute for Microbial Diseases was originally established as a five-department "Research Center for Communicable Diseases" in 1934. Basic research on infectious disease, immunology, and cell biology is the Institute's principal focus. The results of research in these fields at the Institute have contributed considerably to the diagnosis, prevention, and treatment of infectious diseases, immunological diseases and cancer, as well as to progress in basic biomedical science. In 2005, the Institute was reorganized to constitute three research divisions that represent 15 departments together with three attached centers for specialized research on infectious disease and genome information. Moreover, the Research Collaboration Center on Emerging and Re-emerging Infections was founded in Bangkok in collaboration with the National Institute of Health, Thailand, to defend people against possible emerging and re-emerging infections. The Institute was selected as "the 21st Century COE programs" on the theme of "Combined program on microbiology and immunology" (2003-2007). The Institute was also selected as "Global COE programs" on the theme of "Frontier Biomedical Science Underlying Organelle Network Biology" (2008-2013).

The Institute accepts and trains Master and Ph.D. candidates in the medical and biological sciences. At present, more than 275, associate, and assistant professors, research associates, graduate students and research fellows pursue studies in microbiology, oncology and molecular biology at the Institute.

The Institute of Scientific and Industrial Research

www.sanken.osaka-u.ac.jp/en/

The Institute of Scientific and Industrial Research (ISIR) was founded in 1939 as a part of Osaka University with the aim of promoting basic science for the development of industry. Since then, ISIR has conducted interdisciplinary research in the fields of materials, information, and biological sciences. We play a leading role in the nanoscience and nanotechnology research through our Nanotechnology Center, which was established in 2002 and is Japan's first such center attached to a university.

As a nationwide research collaboration system, ISIR established the Network Joint Research Center for Materials and Devices and works in conjunction with five university-attached research institutes. The Japan's first nationwide network research center provides a new framework for facilitating the inter-institute collaboration.

For industrial applications of innovative achievements, we have promoted cooperation between academia and industry through Industry-On-Campus in the newly constructed Incubation Building. To promote the globalization of basic innovative research, a research-collaboration agreement was reached between the Interuniversity Microelectronics Center (imec)— one of the world's largest nanotechnology research institutes— and ISIR in 2011.

Our world-level innovative basic research efforts address problems related to the environment, energy, medicine, and security and safety on studies in the fields of materials, information, and medical sciences along with those in nanotechnology and nanoscience. ISIR pursues a target-driven basic research leading to real innovation.

Institute for Protein Research

www.protein.osaka-u.ac.jp/index_e.php

Institute for Protein Research (IPR) was established in 1958 as an inter-university joint-use facility attached to Osaka University. Protein research has made a remarkable progress for the past 50 years to lead a deep understanding of structures and biological functions of proteins and their complexes. IPR has made a significant contribution to the progress and its organization has been expanding through strong supports from the science community. Now IPR consists of four divisions of Protein Chemistry, Protein Structural Biology, Integrated Protein Functions and International Collaboration Research, and Research Center for State-of-the-art

Functional Protein Analysis in affiliation with IPR. About 50 faculty members, 65 postdocs and 70 supporting staffs are working in a total of 20 laboratories. We are heavily involved in the education at Graduate School of Science, Graduate School of Medicine and Graduate School of Frontier Biosciences to supervise about 90 graduate students. IPR has been operating Worldwide Protein Data Bank (wwPDB) and BioMagResBank (BMRB) as one of four worldwide centers. Several large and unique facilities of IPR, such as synchrotron beam line (SPring-8) and the superconducting NMR (800 and 950 MHz) are opened for joint usage/research. Every year, IPR conducts collaborative works with a total of nearly 100 researchers and graduate students from outside institutions including overseas and holds 15 seminars for over 1,500 participants.

Institute of Social and Economic Research

www.iser.osaka-u.ac.jp/index-e.html

ISER was founded in 1954 as a research institute attached to the Faculty of Economics, and in 1966 became independent of the faculty. Since its inception, ISER has employed first-rate researchers and has conducted internationally recognized research in modern economics. In 2010, ISER was designated as Joint Usage Research Center for behavioral economics by the Ministry of Education, Culture, Sports, Science and Technology.

ISER faculty members engage in both theoretical and empirical research on a wide variety of topics ranging from microeconomics, macroeconomics, game theory, and experimental economics to problems facing Japan such as the recession, the financial crisis, industrial policy, and business strategy. A newly created the Research Center for Behavioral Economics affiliated with ISER aims to establish the first hub of research in behavioral economics in Japan. ISER edits and publishes the International Economic Review, one of the most highly ranked scholarly journals of economics in the world, in conjunction with the Department of Economics at the University of Pennsylvania.

ISER has two visiting research scholar positions, and roughly five foreign researchers are invited every year to Osaka to engage in joint research with ISER faculty members.

Joining and Welding Research Institute

www.jwri.osaka-u.ac.jp/en/

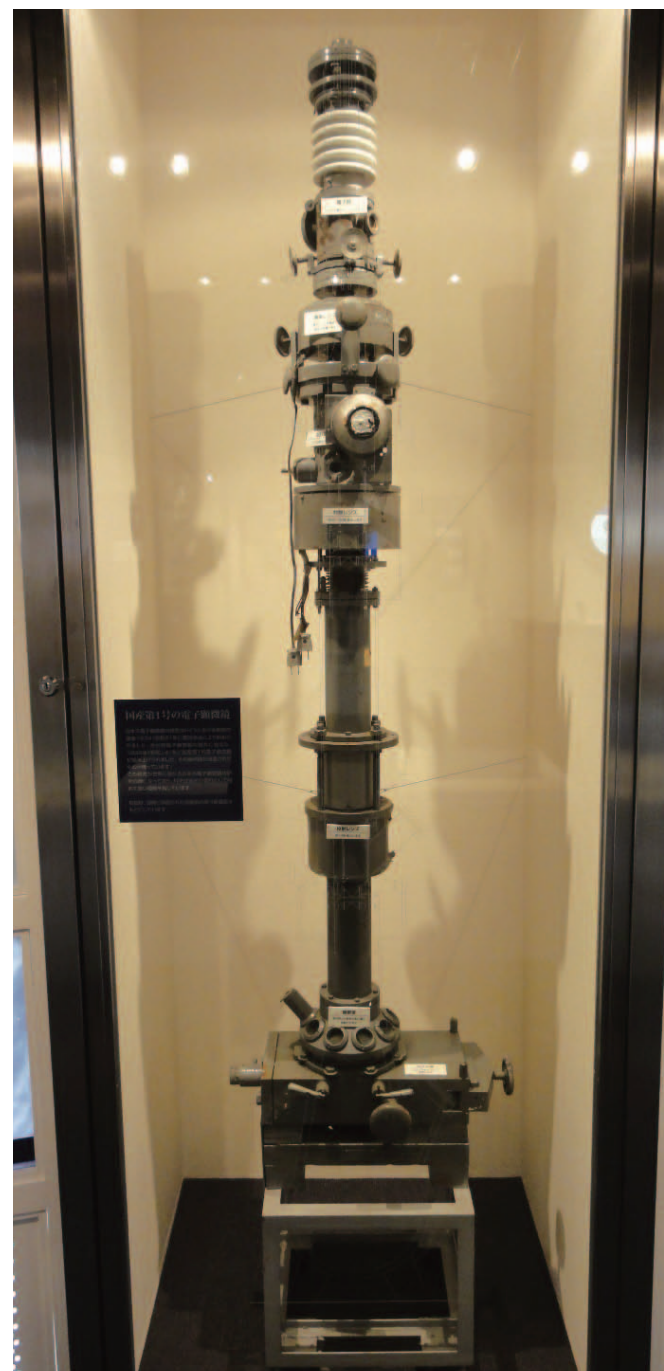
The major objective of JWRI, one of the Nationwide Joint-Use Research Institutes, is to promote the research on the fundamental mechanisms of welding and joining processes and to develop the industrial applications of the processes. In 2015, about 220 researchers conducted the joint works in JWRI. The processes are absolutely essential not only for production of large constructions but also for micro and nano-sized structures. Corresponding to the recent research trends, JWRI established Smart Processing Research Center (SPRC) by reorganizing the two attached Centers. The Institute has three research divisions with ten departments and SPRC with seven departments. The research divisions are Materials Processing System (four departments), Materials Joining Mechanism (three departments) and Functional Assessment (three departments).

Obviously, the welded and joined structures are required to have high performance in the field of mechanical, physical and chemical properties irrespective of the materials used. To secure the high reliability of joined structures, JWRI is actively promoting the research at joining interface that offers the adequate joining conditions and microstructures. To correspond to the social needs, computer simulation, information technology, environmentally conscious processing and nano-technology are widely applied to reveal the many characteristics of joints and interface. The materials used for joining and welding are a variety of metals, ceramics, organic materials, and composites.

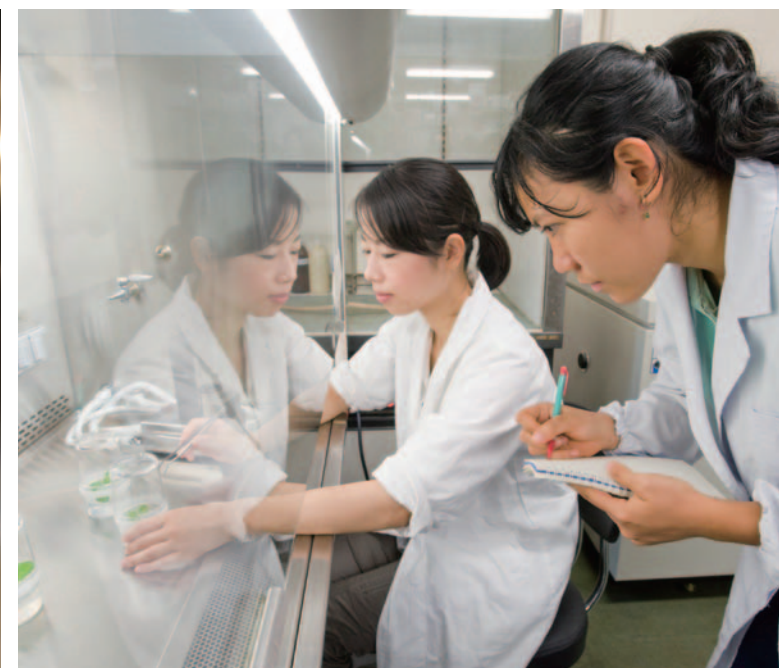
Joint-Use Facilities



▲ Research Center for Ultra-High Voltage Electron Microscopy



▲ The Museum of Osaka University



▲ International Center for Biotechnology



▲ Global Collaboration Center



▲ Center for Scientific Instrument Renovation and Manufacturing Support



▲ Low Temperature Center

Low Temperature Center

www.ltc.osaka-u.ac.jp

The low temperature center was established in 1971 as the joint-use facility and has been managed by the two branches of Toyonaka and Suita campus. The main purpose of the center is a stable supply of liquid refrigerants, such as liquid nitrogen and liquid helium, at a low price in order to support the researches at low temperatures. Liquid nitrogen and liquid helium are necessary for the experiments at low temperatures and they are widely used in various research areas. In the low temperature center, liquid helium is produced by using the helium liquefier equipped in the center, by obeying the High Pressure Gas Safety Law. Since helium is extracted from the natural gas, and Japan imports 100% of its use, the market price of helium is very high. In order to reduce the research expense, helium is recycled in Osaka University. Namely, all the evaporated helium gas is recovered and liquefied again by using the helium liquefier. The recovered gas purity is strictly observed so as not to cause damages to the liquefier. In this way, we can use liquid helium much cheaper than the market price.

In order to support the researches at low temperatures, the low temperature center not only supplies the liquid refrigerants but also lends vessels (liquid refrigerant storage), vacuum components and test equipments to the researchers. The low temperature center also provides experimental space for co-operative researches. In addition, the low temperature center performs its own research at low temperatures and also gives training programs for safety use of liquid refrigerants as well as high pressure gasses.

Research Center for Ultra-High Voltage Electron Microscopy

www.uhvem.osaka-u.ac.jp/en

The Research Center for Ultra-High Voltage Electron Microscopy (UHVEM), Osaka University, has been playing an important role in the progress of instrumentation and application of UHVEM. A 3MV UHVEM, which was developed by the staffs of the center in collaboration with Hitachi Co. Ltd., is installed in the center and is used quite effectively in research in the fields of material science, medicine, and biology.

The maximum accelerating voltage of the UHVEM is 3.5 MV, the world's highest accelerating voltage. The most important advantage of the UHVEM is the remarkable increase (about ten times as large as that of conventional electron microscopes) of the maximum observable thickness of specimens.

Namely, in the case of biological samples, 6μm-thick specimens can be observed. Even in the case of nonbiological samples, it is possible to use 5μm-thick specimens, depending upon materials and objects of study. This UHVEM thus overcomes the limitations of conventional 0.1 MV class electron microscopes; the properties of bulk materials under various conditions can be studied in situ in atomic scale. In order to carry out these in-situ studies, many sorts of devices for in-situ specimen treatment, such as for heating, cooling, stressing and current feeding, have been developed in the center. The center is open not only to researchers at Osaka University, but also to those from other institutions. Several projects in which scientists remotely control and operate the UHVEM via internet, to study the microstructure, are in progress and successful results have been accumulated.

Radioisotope Research Center

www.rirc.osaka-u.ac.jp

Radioisotopes are used not only for basic science but also widely in medicine and industry. At Osaka University, more than a third of staff working in science, medicine, engineering and pharmaceuticals deals with radiation and radioisotopes in their works. And this trend is increasing every year.

The center secures radiation safety in the radiation facilities within the campus by imparting training to those who work at these facilities, while promoting their own advanced research and technology concerning radiation.

The center performs research covering a wide range of topics from science, engineering, medicine, and pharmaceutical science, such as nuclear physics and nuclear chemistry using radioisotopes, radiochemistry, material science, analytical chemistry, radiation chemistry, life science, dosimetry, and radiation protection. Every year, there are more than 40 topics of joint research and over 500 people utilize the facility. Several hundred students use the facilities every year for practical training.

Research Center for Environmental Preservation

www.epc.osaka-u.ac.jp/english/eng_home.png/home.htm

Through today's dizzying pace of scientific and technological development, we have come to enjoy a rich and abundant culture and social lifestyle. As a result, we have come to use not only the resources that exist within the natural environment but a huge number of man-made substances as well. While on the one hand humankind has reaped the benefits, we are also faced with complex and ever-widening environmental and energy-related problems and other issues. Based on such conditions and on the proposal of the Environmental Protection Commission, the Research Center for Environmental Preservation was founded in 1994 as the administrative organ that plays a central role in the research, education and instruction related to the environment and the safety on an all-campus level.

Green chemistry is the foundation of strategies that respond to various environmental issues, which are continuing to grow in complexity and diversity.

This center is currently involved in the development of environmental benign method in organic synthesis, and highly selective and sensitive methods for the analysis of hazardous chemical substances.

Furthermore, this center executes planning, advice and management strategies for treating wastewater and other wastes that are generated by the educational and research activities taking place at this University, administers the processes for rendering them harmless, and maintains the "Osaka University Chemical Communication System (OCCS)".

Center for International Education and Exchange

www.ciee.osaka-u.ac.jp/en/

This center was established in 1994 as International Student Center, renders useful services to international students, including various Japanese language programs, consultation and advice on everyday life and schoolwork, as well as coordination of short-term student exchange programs. This has also offered a variety of cross-cultural exchange programs to promote communication and exchange among international students, Japanese students and near-by communities.

At the heart of Suita Campus, the Intercultural Collaboration Hall (IC Hall) opened in April 2002. Then in April 2010, International Student Center was reorganized as Center for International Education and Exchange (CIEE).

CIEE offers various kinds of Japanese courses such as Intensive Japanese Language Course, Elective Japanese Language Course, to promote Japanese proficiency of international students and researchers.

Support Office for International Students and Scholars and IRIS (Information Room for International Students) belong to CIEE and are located at the second floor as well as lecture rooms for Japanese language classes. Both offices also host a monthly orientation for newly arrived students and scholars from overseas.

The Support Office offers various types of assistance for international students, scholars and their families before and after their arrival at Osaka University, such as mainly visa procedures and housing information.

The IRIS maintains information on schoolwork and daily life as well as consultation and guidance.

Students can broaden friendships and communication with both international and Japanese students, as well as faculty and volunteer workers, by actively participating in a variety of the center's support programs and exchange programs for international students.

At CIEE, professors, associate professors and welfare advisors in cooperation with Mental Health Counselors are available to provide consultation and offer sound advice. Supervisor from the Japanese Language Education and Research Team, administrative staff from International Student Affairs Division and Special Academic Advisors for CIEE are also available to advise and to guide students in close cooperation with the Center.

International Center for Biotechnology

www.icb.osaka-u.ac.jp/index_e.html

While offering education and conducting research in the field of biotechnology from international perspective, the International Center for Biotechnology, together with an established Cooperative Research Station in Bangkok, is promoting academic exchange with neighboring countries in an attempt to become a leading biotech center in Asia.

The main area of research is industrial biotechnology rooted in microbial engineering, while centering on the sustainable use of agricultural and forest resources in resource-rich countries such as those in Southeast Asia. Research is underway into the field of cell engineering with the objective of analyzing the cellular functions of bacteria, fungi and plants, and developing and using functions of these cells for management of biological resources with the aim of developing and utilizing the biological resources that exist on our planet.

In the field of international exchange, the center is cooperating with the Department of Biotechnology of the Graduate School of Engineering in order to promote academic exchanges with universities in Southeast Asia. We are also taking part in many large-scale joint research projects related to biotechnology and producing results of international importance.

Moreover, the center, along with the University of Tokyo and others, has conducted for the past years the UNESCO Postgraduate Training Course in the fields of Microbiology and Biotechnology to offer specialized training for young scientists and professors from UNESCO member countries in the Asian region. New UNESCO training course termed "UNESCO Biotechnology School in Asia" has been launched in 2012.

Research Center for Solar Energy Chemistry

www.rcsec.osaka-u.ac.jp/english/index.html

The development of a basic strategic response to our continually dwindling energy resources and especially to those environmental problems which are prevalent on a global scale is perhaps the most important research theme for present day science and technology. The Research Center for Solar Energy Chemistry was established in 2001 under the expressed purpose of advancing the research that will resolve these issues through the use of solar energy. The Research Center consists of 4 Fields and a joint-use laboratory. The research areas of the 4 Fields are as follows:

Field of Solar Energy Conversion: Fundamental and mechanistic studies on photochemical, photobiological and photophysical processes for solar energy conversion.

Field of Photovoltaic and Photocatalytic Materials: Development of new materials for solar cells and photochemical hydrogen production.

Field of Environmental Photochemical Engineering: Fundamental studies on photocatalytic conversion and production of materials.

Field of Nanophotochemistry: Development of chemical sensors and photofunctional materials based on nanoscience and nanotechnology.

The Museum of Osaka University

www.museum.osaka-u.ac.jp

The origins of Osaka University are to be found in "Tekijuku" (founded in 1838) and "Kaitokudo" (founded in 1724). Over this long period a large archive of precious materials (in excess of 2 million artifacts) has been assembled in the university. This archive is catalogued and held by The Museum of Osaka University (MOU) established in April 2002.

MOU is a "comprehensive academic museum" that corresponds variously to a history museum, a natural history museum, a science museum, and an archive. In August 2007, the new exhibition has been started on Machikaneyama museum, which houses numerous priceless specimens surviving from every field of research from many departments and laboratories. Exhibition introduces the intellectual tradition of the university, researchers made world-class discoveries, and the latest frontiers of science in Osaka University. We also hold an annual exhibition every year, which introduces the results of advanced research in Osaka University. MOU is also a driving force behind the University's project of remaining linked in with society, on the basis of the university's motto of "Live Locally, Grow Globally".

In addition, construction of database (Universal Database on The Museum of Osaka University) is in progress, which is recording useful

and valuable information on precious materials.

The Museum of Osaka University will play an important role in research and general education at Osaka University. Our ultimate goal is to make the collection accessible, informative and useful to society in Japan and the world.

Health Care Center

www.healthcarecenter.osaka-u.ac.jp

The Health Care Center including the Student Counseling Center offers consultation services on health, personal troubles and career options for students, as well as medical care (internal medicine, orthopedic and psychiatry). Every year, all students and staff members of Osaka University are encouraged to take regular medical checkups given at the center. The center also provides other special medical checkups obligated by laws and regulations. Furthermore the center also gives after-checkup services to students and staff members when any ailments and abnormalities are discovered. Anyone feeling concern about or discomfort in their physical or mental condition is encouraged to receive counseling and to learn what is health or bad health, i.e. health education at the center. Privacy is strictly reserved.

The center contributes to campus safety and hygiene through safety and hygiene committee activity. Medical doctors and counselors at the center concurrently commit the clinical study for promotion and management of health as well as prevention of disease. Ongoing research themes covered are cardiac dysfunction, metabolic syndrome, overweight, kidney disease, sleep disorders, and social withdrawals.

Global Center for Medical Engineering and Informatics (MEI Center)

www.mei.osaka-u.ac.jp/en

Originally, the Center for Advanced Medical Engineering and Informatics (MEI Center) has been established since 2004 as the first university center after the beginning of a system of independent administrative corporations. The MEI Center has aimed consistently at enhancing collaboration between researchers in the fields of medicine, engineering, and information science, leading to center core of advanced medical engineering and informatics as interdisciplinary and integrated life sciences.

The center conducted a global center for excellence program supported by MEXT to promote research and education for the physiome and systems biology for establishing "in silico medicine" as the basis of "predictive medicine." With the developed "in silico medicine" platform technology, the center proceeded the academic-industrial joint project for development of hybrid organ with medical engineering and informatics that was also supported by MEXT to enhance the academic-industrial cooperation for the creation of new industries. On the basis of the product of these activities, the center was reorganized as Global Center for Medical Engineering and Informatics (MEI Center) in 2015 to realize the development of global innovative leaders in the medical/healthcare areas, especially drug discovery, medical device development, and regenerative medicine for contributing to welfare and sustainable society.

With the supports from inter-faculty academic staffs, the center offers several educational programs in the interdisciplinary fields of biomedical engineering and informatics in order to develop high-level human resources who will be leading a new consortium for advanced welfare society. The programs include introductory and advanced practical courses, and international summer schools for graduate students, both residential and extramural, the reeducation courses for working people. These programs provide opportunities for students to think about social, medical, clinical and patients' needs and seeds with their engineering bases necessary to address the needs. It is the policy of the center that researches, development, and education to address those needs will lead to emergence of new technologies and industries that may contribute to welfare and sustainable society.

Center for the Study of Communication-Design

www.cscd.osaka-u.ac.jp/english/

The Center for the Study of Communication-Design (CSCD) was founded in April 2005. Communication-Design refers to layout of communication networks between experts and non-experts (citizens), between people with different interests and positions. The objectives of CSCD include: (1) training of graduate students in communication capability with citizens, (2) training of science and technology communicators and mediators with skills in dialogue facilitation as well as conflict management, (3) research and development of communication-design especially for consensus building in public affairs, and (4) building of communication networks in collaboration with NPO/NGOs and active citizens.

CSCD consists of five sections (Science & Technology, Human Care in Practice, Community Design, Art and Communication-Design). The background of staff members is various, from philosophy, sociology, psychology and anthropology to art, media design and drama. Thus, in eleven years, our research activity became interdisciplinary by collaborating with each other.

As for education programs or updated liberal arts, CSCD offers a set of subjects called communication-design courses for graduate students, which include introduction to science and technology communication and performing arts workshops, among others. Social alliance is a very important theme for us. There are a couple of training program for students, NPO/NGOs and active citizens, such as those for mediators in medical settings, coordinators of community developments, coordinators of various workshop and art coordinators. CSCD also offers Graduate Program for Advanced Interdisciplinary Studies in "Studies of Communication-Design," "Science and Technology Policy in Public Sphere," and Graduate Minor Program in "Science and Technology Policy in Public Sphere." In addition, a science shop is organized for interested citizens to make contact with researchers and graduate students and to have their science-related problems solved.

Center for Mathematical Modeling and Data Science

www.mmds.sigmath.es.osaka-u.ac.jp/en

The Center for Mathematical Modeling and Data Science (MMDS) was founded in October 2015 by reorganizing the Center for the Study of Finance and Insurance (CSFI), in order to establish one of the most advanced research and education hubs in the world, and to provide students opportunities to enhance their knowledge of various fields including finance, insurance, mathematics, statistics, operation research, industry, and medicine; in cooperation with the four graduate schools of Osaka University: Engineering Science, Science, Information Science and Technology, and Economics.

MMDS consists of three divisions, Finance & Insurance (DFI), Mathematical Modeling (DMM) and Data Science (DDS). DFI offers a Graduate Minor Program that includes three courses: Mathematical and Statistical Finance, Financial Economics and Engineering, and Insurance. DDS offers a Graduate Program for Advanced Interdisciplinary Studies that includes five courses: Mathematical Statistics, Machine Learning, Statistics for Human and Social Sciences, Health and Medical Statistics, and Econometrics. In addition, DDS prepares to open a new course on Big Data Analysis in 2016. DMM plans to start a new Graduate Program for Advanced Interdisciplinary Studies with two courses: Mathematics and Systems Science in 2016. All these educational programs correspond to the graduate or higher level. The objectives of the educational programs are to nurture next leaders who make significant contributions to finance, insurance, mathematical modeling, data science and the related fields.

Center for Scientific Instrument Renovation and Manufacturing Support

www.reno.osaka-u.ac.jp

Center for Scientific Instrument Renovation and Manufacturing Support (CRM) is supporting research and education activities in Osaka University by providing easy access to almost 100 scientific instruments/equipments within the university and offering a wide array of machining, glass-work, and vacuum repair services for students, technical staff, researchers, and faculties. We are also offering elemental analysis service, and assistance for "do-it-yourself" in the

student machine shop, and basic and advanced machining and glass-work training courses. In addition, as our off campus support, we are now offering analytical services for local academic and industrial communities, too.

CRM, founded in April 2014 through a reorganization of the Renovation Center of Instruments for Science Education and technology, consists of two divisions, Research Facilities Renovation Support Division (Suita Campus) and Manufacturing Support Division (Toyonaka Campus). The Research Facilities Renovation Support Division focuses on managing the shared use of scientific instruments/equipments and providing financial and technical support for instrument/equipment repair, restoration and upgrade to enhance our available instruments for the shared use. The Manufacturing Support Division focuses on providing custom machining and glass-work services and training courses. Since the original foundation in 1966 as a central workshop, the CRM has been supporting research and education on campus for almost a half century through our craftsmanship. Today, the CRM is also helping research and education activities through bringing a wide range of scientific instrumental resources within easy reach of scholars on campus, and even for those off campus now.

Global Collaboration Center

www.glocol.osaka-u.ac.jp/en/

Global Collaboration Center (GLOCOL) is an academic institution dedicated to research, teaching and social engagement in global and local agendas involving transcultural, transnational and transregional issues. Founded in 2007, its 12 full-time researchers currently work under the directorship of Professor HIRATA Kazumasa.

We at GLOCOL believe that one of humanity's crucial goals is to attain symbiotic co-existence among the various human politico-economic and socio-cultural institutions as well as the diverse geo-environmental and bio-ecological life forms all over the globe. This goal cannot be achieved solely by means of purely scientific, technological investigations. Comprehensive, holistic, inclusive, interdisciplinary approaches are required in order to take into account not only the multiplicity of human values and practices, but also the diversity of geological, ecological, biological phenomena on earth.

GLOCOL's research foci are firmly grounded on cross-disciplinary methods, combining inspirations from the arts and the sciences in unique ways to explore the issues at hand from manifold perspectives. Academic staff at GLOCOL work in joint research projects in collaboration with researchers all over the world. Our current large scale international and interdisciplinary research projects include one funded by SATREPS (Science and Technology Research Partnership for Sustainable Development), which aims to investigate the social, ecological and biological factors leading to the outbreak of multi-drug resistant bacteria in Viet Nam and to develop effective monitoring procedures for combating the problems they cause.

GLOCOL takes full advantage of Osaka University's wide range of expertise in diverse disciplines in the fields of natural sciences, including medicine, pharmacology, engineering, and in the fields of social sciences and humanities, including global languages and literature, philosophy, history, sociology, anthropology, psychology, law, economics and political science.

In the area of education, we offer students opportunities to develop transcultural communication skills and global outlooks through interactive, discussion-based, learner-centered teaching schemes. In order to further expand our aspirations in transforming the current conditions of university education in Japan, we launched FIELD0 (Fieldwork, Internship and Experiential Learning Design Office) in August 2010 for the purposes of designing and offering field-study and internship programs abroad. These study and internship abroad programs provide students with opportunities to put the theories they learn in classrooms to test in amongst the real-life complexities. Our programs have sent to date a total of 334 undergraduate and graduate students to project field sites and internship destinations overseas. Regular seminars are organized to encourage students to develop knowledge and skills for future career paths in international organizations.

GLOCOL offers seven programs in Osaka University's Graduate Program for Advanced Interdisciplinary Studies in collaboration with the university's science and arts faculties, namely Global Coexistence, Human Security and Development, UN Policy Expert Development Program, Global Health Environment, Legal Interpreting and Translation, Issues and Research on Contemporary China, and Local Environment

of East Asia. All these programs combine courses from diverse disciplines, thereby allowing graduate students to acquire the state of art knowledge from experts belonging to different departments and centers at Osaka University.

One of the unique features of GLOCOL as an academic institution can be found in its combination of research, education and commitment to social engagement. We seek to serve society by not only conducting research and education, but also by getting closely involved in activities outside the academia in order to translate our research and teaching into social engagement practices and to gain feedback from the wider world. We have collaborative projects with Japan International Cooperation Agency (JICA) for international cooperation in post-conflict and developing countries. In partnership with non-governmental organizations, we were involved in relief efforts immediately after the Great East Japan Earthquake (Tohoku Earthquake) in 2011, and continue to support those affected in the Tohoku region (Fukushima, Miyagi and Iwate prefectures). Particular attention is paid to migrant communities in these areas to provide the people with information regarding disaster prevention in their own languages, and to offer the Japanese residents opportunities to befriend their hitherto alien neighbors. We host and participate in social-cum-academic events to foster transcultural communication all over Japan to support the country in its path towards global coexistence.

Center for Japanese Language and Culture

www.cjlc.osaka-u.ac.jp

The Center for Japanese Language and Culture (CJLC) was first established as the Special Course for Foreign Students at Osaka University of Foreign Studies in 1954. Since then, CJLC has supported our country's policy to accept foreign students by acting as a benchmark institution for more than half a century for the education of Japanese language and culture for Japanese Government Scholarship Students. CJLC has recently been authorized as a "Joint-usage Educational Center" by the Japanese Ministry of Education, Culture, Sports, Science and Technology.

In addition, CJLC has also contributed to the reinforcement and development of Japanese language and culture learning around the world by establishing partnerships with 20 institutions for Japanese studies overseas.

Meanwhile, CJLC offers three main programs: the Undergraduate Students Program, the Japanese Studies Program and the Maple Program.

The Undergraduate Students Program is a preparatory program for international students who come to Japan on the Monbu-kagaku-sho scholarship. The program is designed to help students develop their base knowledge and advance their skills in the Japanese language required to meet the academic standards of their hosting institutions. The certificate issued to the students upon successful completion of this program is a prerequisite for admission to their future universities in Japan.

The Japanese Studies Program is intended for undergraduate-level Monbu-kagaku-sho scholars specializing in Japanese studies. They are expected not only to improve their skills and proficiency in Japanese, but also to develop the knowledge required for their research in various fields of Japanese studies. This will provide them with an extensive knowledge of Japanese language and culture that will be useful before and after leaving Osaka University. The program also offers various extracurricular activities that help students deepen their understanding of Japanese language, culture and society.

The Maple Program is a one-year program for short-term exchange students at Osaka University designed especially to help students improve their language skills, enhance their knowledge of Japanese culture and society, and to advance them forwards on their respective academic goals. Moreover, the program aims to develop individuals with an in-depth and proficient understanding of Japan from various perspectives, thereby encouraging them to compare and contrast Japanese language and culture with their home countries.

Center for Environmental Innovation Design for Sustainability

www.ceids.osaka-u.ac.jp/english

Center for Environmental Innovation Design for Sustainability (CEIDS), launched in October 2010 as an institution-wide Osaka University

organization, succeeded Sustainability Design Center to further promote sustainability science education and research in the field of environmental innovation. By collaborating with multiple graduate programs and departments, the center provides graduate students from all parts of Osaka University with the interdisciplinary, cross-university Sustainability Science Education Program, which aims to train people in the core knowledge and practical skills of sustainability science as well as the communication and design skills needed to develop a sustainable society. Through its educational programs, the CEIDS functions as a platform for sharing knowledge within the university and supports and promotes research that encourages taking action toward environmental innovation for sustainability. CEIDS also conducts interdisciplinary research with the objective of building a sustainable society. Taking an interdisciplinary approach, the center uses domestic and international networks to conduct research and education on such topics as the model design of sustainable societies (including low-carbon societies and recycling-oriented societies), management and system design for transitioning to low-carbon societies, and creating pluralistic valuation methods for sustainability and the establishment of environmentally sustainable energy systems. In addition to the above, the center conducts research that brings together basic technologies to build sustainable societies with expanded, global social views and to encourage technological and social innovation. (Center for Environmental Innovation Design for Sustainability will be closed in FY2016.)

Institute for NanoScience Design

www.sigma.es.osaka-u.ac.jp/pub/nano

The Institute for NanoScience Design (INSD) prepares various kinds of education and training programs aimed at passing on the accumulated knowledge of nano-science and nano-engineering to graduate school students and young researchers working in industries who are expected to design and develop new fields for the future of science and technology. Among these programs are the trans-disciplinary graduate-school minor course program, the evening refresher course program, the short-term international research-training program, and others. They offer a series of lectures including public engagement and technology design, some of them in the form of distance education broadcasted live via internet to satellite classrooms located all over Japan, and even overseas in English. They also organize summer school with lecturers from Europe and/or USA. In addition to the lecture courses, the students can join in intensive hands-on training programs using modern facilities, allowing them to design, fabricate, measure, and characterize nano-materials and nano-devices. Project-aimed learning and training programs are also offered in collaboration with the Academia-Industry Liaison Consortium. These programs are conducted by joint groups of lecturers and researchers belonging to six graduate schools and five research institutions and centers related to nano-science and nano-engineering in Osaka University.

Intellectual Property Center (IPrism)

www.iprism.osaka-u.ac.jp

The Intellectual Property Center (IPrism) was established on April 1, 2010 as a center for promoting comprehensive intellectual property education and research. Our center is composed of center members and researchers from university and IP practitioners with hands-on experience. IPrism aims to educate a new generation of specialists equipped with a broad intellectual property vision. In addition, members also aim to make social contributions in the intellectual property field. IPrism offers various educational opportunities for students such as a general education in Intellectual property for the undergraduate student. There is also an Intellectual property law program for graduate students. In particular, the Intellectual property law program will help develop leaders in practice or top specialists in intellectual property law. In addition to the lecture, students join an e-learning system using the internet. The learning and practical training provided will improve the student's intellectual property skills.

National Joint-Use Facilities



Research Center for Nuclear Physics



Ultra-High-Speed Supercomputers (Cybermedia Center)



Institute of Laser Engineering

Research Center for Nuclear Physics

www.rcnp.osaka-u.ac.jp

The Research Center for Nuclear Physics (RCNP) was founded in 1971 as a national research center for nuclear physics.

Its aim is to promote and perform world-level researches in nuclear and particle physics using advanced accelerators and related facilities in order to answer basic questions such as “How are quarks confined in a nucleon?”, “How are various nuclei formed in the universe?” and “Why do the matter dominate over the anti-matter?”

RCNP operates the Ring Cyclotron in Suita campus, the Laser-Electron facility at SPring-8, underground facilities at Kamioka, and a super-computer for international collaborative researches.

Current major activities are: (1) Studies of the properties of nuclear forces and structures by using a high resolution proton beam and heavy ion beam from the Ring-Cyclotron, (2) Studies of hadrons by using a high-energy polarized photon beam at SPring-8, and (3) Studies of the properties of elementary particles to understand how our universe was created.

Cybermedia Center

www.cmc.osaka-u.ac.jp/?lang=en

The Cybermedia Center (CMC) was founded in 2000 as Osaka University sought to reorganize and expand its Computation Center to form a branch of the Information Infrastructure Center.

In the expansion, the Education Center for Information Processing and part of the university library were merged into the CMC. CMC consists of eight research divisions: Informedia Education, Multimedia Language Education, Large-Scale Computational Science, Computer-Assisted Science, Cyber Community, Advanced Network Environment, Applied Information Systems and University-wide information and Communications Infrastructure Services Promotion. We continue to provide computers for advanced scientific techniques and media services and to promote education in information processing and the university library by providing digital contents.

We have ultra-high-speed supercomputers and computing servers, and provide a powerful high performance computing environment for university researchers across Japan. It plays the role of the nation's hub in teaching and diffusing advanced information technology. In addition, we assume the responsibility of facilitating the campus infrastructure and promoting its effective use. We also provide facilities for advanced education to our

students.

It operates an Information Education system and Computer Assisted Language Learning system with approximately 1,180 computers connected by the Osaka Daigaku Information Network System. We offer a consistent information education curriculum, covering basic use of e-mail communication and the Internet to advanced computing technology.

Institute of Laser Engineering

www.ile.osaka-u.ac.jp

The Institute of Laser Engineering (ILE) was founded in 1972 and unified with the Research Center for Superconductor Photonics in 2004. The objective of the Institute is to develop high energy and high power lasers and to open a new scientific field related to the extremely high energy density state created by the high power lasers.

ILE consists of five research divisions, Power Photonics, Laser Fusion, High Energy-Density Science, Laser Terahertz, and Radiation and Particle Physics. In the Power Photonics Division, new laser materials with high endurance and advanced technologies to control the laser are studied to construct extremely high power and high intensity lasers. The Laser Fusion Division explores feasibility of fast ignition scheme using an ultra-short, intense laser pulse, which is an innovative approach toward high gain laser fusion. The High Energy-Density Science Division covers laboratory astrophysics, planet physics, particle acceleration, and laser nuclear physics that can be realized with the ultra-high intensity laser. The Laser Terahertz Division explores science, technology and application of terahertz electromagnetic wave radiation generated with laser irradiation. The Radiation and Particle Physics Division deals with physics and applications of radiations from laser-produced plasma including energetic particles, X-rays and EUV for lithography.

These researches are based upon varieties of lasers which are the GEKKO XII high power laser (10 kJ in 1 ns), the ultra-high intensity LFEX laser (10 kJ in 10 ps) and the high repetition rate YAG laser (5 kW > 10 kHz). These laser facilities are open not only for domestic users, but also for international users.

Immunology Frontier Research Center (IFReC)

www.ifrec.osaka-u.ac.jp/en/

The Immunology Frontier Research Center (IFReC) at Osaka University, directed by AKIRA Shizuo, was established in 2007 with the aforementioned four immunologists at the core. IFReC was selected by the Japanese government as one of the nation's nine exclusive World Premier International (WPI) Research Centers.

There are diverse researchers enrolled at IFReC. They are studying a wide variety of research fields besides autoimmune diseases including malaria infection, osteoporosis, metabolic syndrome et cetera, incorporating the latest technologies such as Laser microscopes, MRI, and computer simulation for their studies.

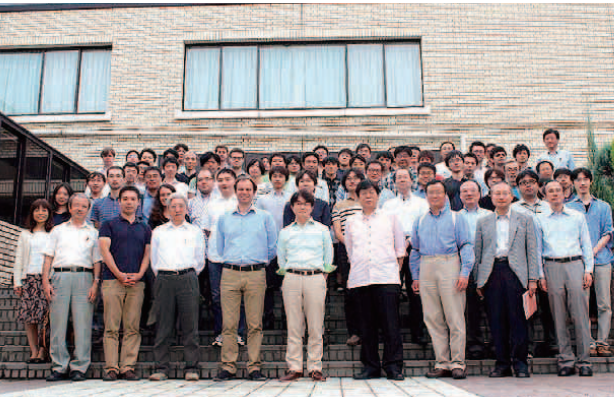
The scientific aim of IFReC is to contribute to a more comprehensive understanding of the dynamics of the immune system by employing not only traditional immunology experiments, but also a variety of imaging and bioinformatics technologies. This will lead to new and more efficient development strategies for vaccines and immune therapies when combating infectious diseases, cancers and autoimmune diseases.

IFReC is expected to grow into a new leading institute of immunology and biosciences.



CiNet (Center for Information and Neural Networks)

cinet.jp/english/



The Center for Information and Neural Networks (CiNet) is an interdisciplinary brain-neuroscience technology research institute based in Osaka, Japan. CiNet is Japan's flagship initiative to develop intelligent technologies founded on the rapid advancement in our understanding of the brain. The central research building opened in 2013, and houses state-of-the-art facilities for pure and applied research into systems neuroscience relating information and communications technology, brain-machine interfaces, neuroimaging technology, and brain-inspired artificial intelligence technology.

CiNet's research is led by a team of over 30 of the most innovative and pioneering scientists from Japan and abroad, together with over 100 researchers, engineers and technologists. They make CiNet a uniquely creative and collaborative institute dedicated to discovering fundamentally new ways to improve human health, wellbeing, and experience. The goal is to forge a young and diverse team of the most innovative and imaginative scientists from a variety of disciplines to lead a new integrated program of neuroscience and technology research under one roof.

Overall, CiNet's core mission is the study of the information and neural network strategies used by living systems, including high level brain function, and implementation of these findings to artificial information and communications networks.

Institute for Academic Initiatives (IAI)

The Institute of Academic Initiatives cultivates the capacity to create the future

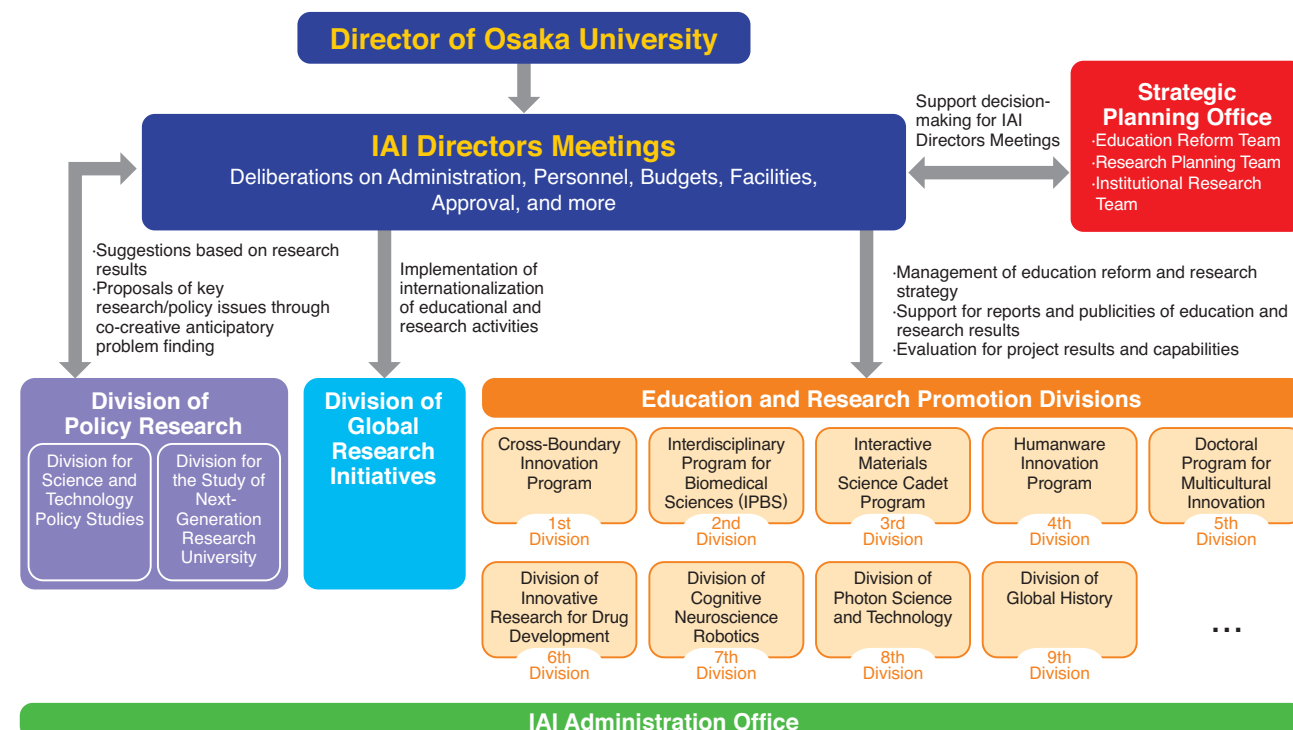
The Osaka University Institute for Academic Initiatives (IAI) was set up in order to promote, under the leadership of President, interdisciplinary crossboundary education and research. Each of Osaka University's schools conducts education and research in professional fields; however, modern society faces many challenges that require creative approaches, approaches that require scholarship from more than one field. Thus, the IAI was set up for the purpose of promoting such cross-border, medium- and long-term learning and research, strategies for a future viewed as a whole.

Utilizing the entire University's expertise

Take full advantage of the entirety of the University's expertise, by balancing the combination of each departmental or institutional autonomy and competencies with cross-boundary education and research.

Promoting cross-boundary education and research under the direct supervision of the University president

Develop cross-boundary education and research through trial-and-error approach under the direct supervision of the university executive office, including the president, and independent of individual departments and institutions.



Strategic Planning Office

Division of Policy Research

Division of Global Research Initiatives

Education and Research Promotion Divisions

2011 2016 2021 2026 2031 100th

Strategize for the future

The Strategic Planning Office serves as a strategic headquarters of the university, formulating plans and making suggestions for educational reform, new research programs and globalization within the university.

Design plans for university growth

The Division of Policy Research is carrying out policy research on science and technology as well as internationalization. The Division makes recommendations to the IAI Directors based on research results.

Facilitate the acceptance of researchers from overseas

Division of Global Research Initiatives is preparing to accept researchers from overseas to promote the internationalization of education and research in the university. It also provides an opportunity for distinguished researchers from Japan and all over the world to gather and collaborate.

Cultivate global human resources and develop new areas of research

Divisions One to Five are cultivating global human resources focusing on creativity and a broad perspective, through the "Program for Leading Graduate Schools," supported by the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

Divisions Six to Nine are developing new research areas from varied and disparate fields, capitalizing on the diversity of a comprehensive research university.

- 1st Division Cross-Boundary Innovation Program 
- 2nd Division Interdisciplinary Program for Biomedical Sciences (IPBS) 
- 3rd Division Interactive Materials Science Cadet Program 
- 4th Division Humanware Innovation Program 
- 5th Division Doctoral Program for Multicultural Innovation 
- 6th Division Division of Innovative Research for Drug Development
- 7th Division Division of Cognitive Neuroscience Robotics
- 8th Division Division of Photon Science and Technology
- 9th Division Division of Global History

Office for University-Industry Collaboration (UIC)

www.uic.osaka-u.ac.jp/en/index.html



The University-Industry Collaboration (UIC), established in April 2011, has aimed at contributing to the development of the world and society, as well as the development of the university and industry. UIC has been working for the creation of innovations through collaboration with industry, with the “Industry on Campus” concept to bring an industry generating center on campus.

Based at the TechnoAlliance Complex built in 2011, UIC has established several Joint Collaborative Laboratories to promote the university-industry collaboration. In July 2015, UIC has contributed to established Osaka University Venture Capital, which has just started the investment fund. UIC would like to make further efforts to create breakthrough innovations through the activities of the Office for UIC, creating innovative technical seeds, producing future leaders for innovation, managing intellectual property and material transfers, developing new research centers, and fostering international collaboration.

Office for Information and Communications Technology Services

www.oict.osaka-u.ac.jp/

The Office for Information and Communications Technology Services was established to support Osaka University's education and research. This includes developing University information and communications infrastructure, promoting the use of information and communications technology, upgrading and improving existing technology services, as well as strengthening information security at the University. The Office manages information and communications technology at the University, strategically planning medium- and long-term university-wide policies for the utilization of the latest technologies.

Teaching and Learning Support Center (TLSC)

www.tlsc.osaka-u.ac.jp/



Teaching and Learning Support Center (TLSC) is a campus organization that was established in June, 2013. The mission of TLSC is to promote and support the development and enhancement of teaching and learning at Osaka University. Since 2014, the center annually hosted more than 60 FD seminar and workshop programs. The center also focuses on the development of an active learning environment on campus. The center has four active learning class rooms and runs automated lecture capture system in 17 class rooms in the CELAS lecture buildings. Active learning facilitates spontaneous learning by students who actively find or define problems in specific fields and challenge to solve them. From a university-wide standpoint, the center is also in charge of planning, development and implementation of teaching and learning support programs. The center also is in charge of developing MOOC (Massive Open Online Course) that is released as OsakaUx from edX platform.

TLSC will be a part of Center for Education in Liberal Arts and Sciences in FY2016.

Department of Environment and Energy Management

www.eem.osaka-u.ac.jp/HP/index.html



The Department of Environment and Energy Management oversees energy use in campus operations at Osaka University, promoting efficiency and the reduction of greenhouse gas emissions. We develop goals to shape low-carbon campuses for lasting and efficient support of the University's commitment to reducing our environmental impact.

Kaitokudo for the 21st Century

21c-kaitokudo.osaka-u.ac.jp



In 1724, a gakumonsho [a place for study] called Kaitokudo was established in the city of Osaka. In those days such gakumonsho were, in general, founded by influential samurai or fiefdoms for the purpose of educating samurai. Kaitokudo, however, was founded and financed by five powerful merchants for the benefit of members of the merchant class. Moreover, Kaitokudo was not merely a place for educating merchants; it boasted the highest caliber research achievements of that age. Present-day Osaka University traces its spiritual origins back to Kaitokudo and to Tekijuku, a gakumonsho founded by Ogata Koan in 1838.

To realize in our time the ideals that Kaitokudo aspired to, Osaka University launched Kaitokudo for the 21st Century in April 2008. Kaitokudo for the 21st Century not only informs Osaka people as to the contributions Osaka University is making to society, but also offers cultural programs to the local community. It also plays the role of coordinator, listening to the local community's opinions and requests and reflecting them in the university's activities.

Its main office is in the Osaka University Hall on Toyonaka Campus. The building contains a communication gallery displaying Osaka University's intellectual activities as well as a multi-purpose studio for holding various events.

Osaka University Tekijuku Commemoration Center

www.tekijuku.osaka-u.ac.jp/en



The Osaka University Tekijuku Commemoration Center was set up as a department of Osaka University in 2011. Designated as a National Historical Landmark and as a National Important Cultural Asset, its objectives are: to preserve and pass on the spirit of Tekijuku; to maintain and manage Tekijuku-related materials; to conduct research into and honor the achievements of OGATA Koan, his students and others related to Tekijuku; and to contribute to the advancement of academic and cultural research on Osaka, the birthplace of Tekijuku, and on the Netherlands, which has a close relationship with the learning provided at Tekijuku.

Department for the Administration of Safety and Hygiene

www.osaka-u.ac.jp/jp/facilities/anzen/



The Department for the Administration of Safety and Hygiene was established as a specialized department in Osaka University. It is in charge of managing and carrying out periodic patrols, responding to accidents, collecting accident information, responding to laws and regulations, and providing education on safety and health. The Department consists of both academic and administrative staff. Therefore it is able to respond to incidents that occur in various places and situations on campus. The Department for the Administration of Safety and Hygiene works in cooperation with related Centers and expert committees to ensure a safe and healthy environment at Osaka University.

Support Center for Campus Life

www.sccf.osaka-u.ac.jp



This center, previously known as the Student Support Station but renamed as the “**Support Center for Campus Life**” on June 1, 2013, provides counseling services to help students solve their personal problems and also provides support for their extra-curricular social activities. This center consists of three units: **Student Disability Services, Student Counseling and Consultation Services** and **Career Development Services**. These units also work in coordination with the counseling rooms at each school and the student counseling room at the Health Care Center.

In addition to providing high-quality student support, the Support Center for Campus Life issues newsletters and holds Station Cafés regularly in order to provide opportunities for students to get together. For social activity support, this center holds sign language classes as well as report and opinion exchange sessions for volunteer activities on various issues. For career support, this center provides information, advice and guidance on career development so that students can make and realize successful career decisions.

Osaka University Nakanoshima Center

www.onc.osaka-u.ac.jp



Osaka University was originally founded in Nakanoshima thanks to the enthusiasm of the Osaka inhabitants and continued efforts of the local people. At present, various urban regeneration projects are being developed there, and in April 2004, in a way that inherits this unique history, the ‘Osaka University Nakanoshima Center’ (ONC) was founded.

Within the center itself, halls, lecture theaters, seminar and conference rooms are open to university faculty as well as the general public. For example, lectures are sometimes given by faculty at the University and ‘Osaka University Open Lecture’ was the first course of its kind aimed at the general public.

The University not only hosts cultural and academic lectures but also acts as a lecture venue for the general public and co-hosts various events with the private cultural center. ONC has become an academic, cultural and educational ‘space’ for learning and exchange.



In addition, a number of universities have established satellite campuses within the center giving expert lectures to citizens to help shape and improve their careers. Located in the center of the city, ONC is the fourth campus easily accessible to a wide variety of people and is used as a base to contribute to the community and society as a whole.

Osaka University Tokyo Office

www.osaka-u.ac.jp/en/academics/facilities/tokyo/office



The Osaka University Tokyo Office was established in 2014 as a base for Osaka University in and around Tokyo, the nation’s capital. The Office has three main purposes: to promote education and research, to provide a place to meet and interact with alumni, and to advance industry-university collaboration.

The Office is located in Kasumigaseki, a central area in Tokyo where government ministries and major companies have their headquarters. It consists of two multipurpose rooms, suitable for meetings, seminars and lectures, as well as a common space for meetings and office work. The Office is actively used by Osaka University faculty members, staff members, students, and alumni.



Osaka University Hospital

www.hosp.med.osaka-u.ac.jp/english/



Surgical Assistant Robot “Da Vinci”



Osaka University Hospital started in 1869 at Daifuku-ji Temple as a provisional hospital. Since then, the hospital has continued to grow with several reorganizations along the way. The hospital is now one of the leading medical institutions in Japan, contributing to a wide range of fields in

clinical medicine. It is renowned for the recent pioneering role in advanced emergency medicine, medical quality management and innovative medical translational research in cancer immunotherapy, gene therapy, tissue engineering and transplantation, as well as healthcare robotics.

Osaka University Dental Hospital

hospital.dent.osaka-u.ac.jp/index-e.html



Center for Cleft Lip and Palate Treatments

Over 60 years since the establishment in 1953, Osaka University Dental Hospital has been expanding to respond to demands of society with its basic philosophy “To promote education and research in oral medicine through dental practice, and devote to development of oral health care for regional and global society”. It comprises three clinical divisions; Tooth and Supporting Tissues Diseases, Prosthodontics and Orthodontics and Oral and Maxillofacial Diseases associated with central clinical facilities and divisions.

Center for Translational Dental Research strives on

highly advanced dental implant treatments and dental tissue engineering. Recently, Center for Cleft Lip and Palate Treatment was established to offer interdisciplinary treatments for patients from infancy to adulthood by specialized dentists from various clinical departments.

Center for Global Oral Health offers assistance and provides information for international patients, scholars and dental practitioners on such matters as hospital procedures, advanced clinical training, research activities and other miscellaneous procedures.

Overseas Centers

North American Center for Academic Initiatives

European Center for Academic Initiatives

ASEAN Center for Academic Initiatives

East Asian Center for Academic Initiatives



Osaka University aspires to become one of the world's most advanced universities. Based on exchange agreements with distinguished academic institutions, we intend to further strengthen student exchange activities through international student inbound activities and the active promotion of overseas study for Japanese students. In particular, Osaka University places great importance on nurturing global human resources with excellent communication skills who can demonstrate leadership skills in the international society. To this end, we have established four overseas centers to support the exchange of students. Furthermore, we support alumni activities in several regions and strive to expand these networks to local areas worldwide.



North American Center for Academic Initiatives (San Francisco Office)

www.osaka-u-sf.org

The North American Center for Academic Initiatives has established an office in San Francisco to facilitate the university's activities in North America. Collaborating with Osaka University's departments, the Center supports overseas research, international symposiums/seminars, exchange and short-term summer programs, and faculty cross-appointments. It offers information about international programs and provides support to Japanese and international students with regard to program matching activities. To stimulate students/faculties motivation to study/research abroad, live lectures are broadcast from San Francisco and through such distance learning activities we actively promote the exchange of students overseas. The North American Center fosters alumni activities and strives to expand its international network with the cooperation of alumni members in North America.



European Center for Academic Initiatives (Groningen Office)

www.osaka-u-groningen.org

The European Center for Academic Initiatives has established an office in Groningen, the Netherlands, to support the university's activities in Europe. The European Center supports overseas research, student and staff mobility and short-term summer programs. In particular, the European Center offers collaborative language programs within Europe as a first step appetizer program to encourage long-term overseas study. The European Center supports overseas alumni activities and aims to expand its international network with the cooperation of the alumni members in Europe. Through the recruitment of outstanding international students at European study fairs, we aim to enhance the overall presence of Osaka University in the region.



ASEAN Center for Academic Initiatives (Bangkok Office)

www.osaka-u-bangkok.org

The ASEAN Center for Academic Initiatives has established an office in Bangkok, Thailand, to support the university's activities in Southeast Asia. The ASEAN Center aims to recruit outstanding students to Osaka University from Thailand and all ASEAN countries through active promotional activities making use of the local network. Through the recruitment of outstanding international students at Study-in-Japan Fairs and other international education fairs, we aim to enhance the overall presence of Osaka University in the region. The ASEAN Center also supports alumni activities in Thailand and all ASEAN countries, aiming at expanding its international reach with the cooperation of the alumni members in Southeast Asia.



East Asian Center for Academic Initiatives (Shanghai Office)

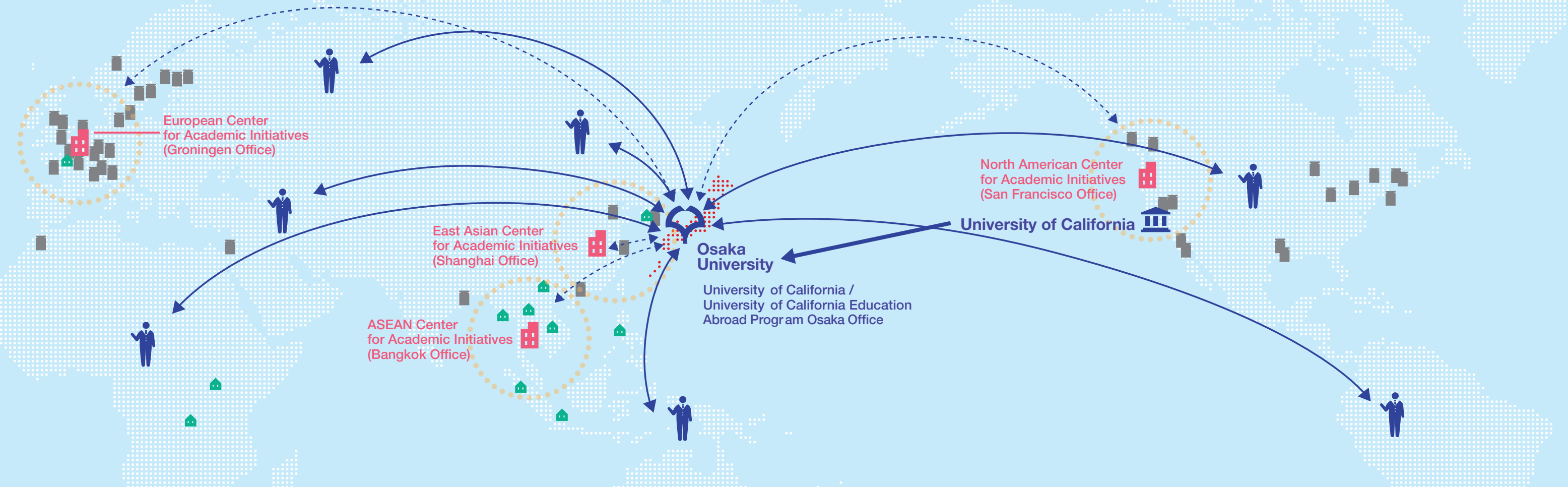
www.shanghai-center.osaka-u.ac.jp

The East Asian Center for Academic Initiatives has established an office in Shanghai, China, to support the university's activities in East Asia. The Center aims to recruit outstanding students to Osaka University from China and neighboring countries and regions through the active promotion of public relations activities making use of the network in the local area. We aim to enhance the overall presence of Osaka University through the recruitment of outstanding international students at Study-in-Japan Fairs. The East Asian Center also supports alumni activities and we strive to expand the international network with the cooperation of the alumni members in East Asia.



Education and Research at Osaka University: Expanding Worldwide Developments

Osaka University is actively enhancing its worldwide network of educational and research institutions to strengthen its international presence and research capacity. International Joint Labs and the expansion of offices facilitating collaboration with institutions overseas are expanding the reach and impact of Osaka University outside of Japan.



International Joint Labs

International Joint Labs bring researchers from overseas to a center for collaborative research at Osaka University, with a total of 34 labs successfully formed from 2013 to 2015 in cooperation with 43 research institutions around the world. The goal of increasing the number of these collaborative labs to 100 by 2023, a decade after its inception, is meant to further enhance the quality of research at Osaka University.

A Network of International Centers

Osaka University's four Overseas Centers have been repositioned to facilitate exchange in their entire region, including but not exclusive to the city in which they are based. This extension of their reach from a single locale to an entire region, coupled with the 11 independently established departmental and institutional centers across the globe, aim to solidify and expand the reach and contribution of Osaka University in and to the world.

Research Universities and Institutions Associated with International Joint Labs (at Osaka University)

Europe

- Åbo Akademi
- École Centrale de Nantes
- École Polytechnique
- Eidgenössische Technische Hochschule Zürich
- Ersta Sköndal University College
- European Institute of Japanese Studies
- Forschungszentrum Jülich GmbH
- Friedrich Miescher Institute for Biomedical Research
- King's College London
- Norwegian University of Science and Technology
- Ruhr University Bochum
- RWTH Aachen University
- Technical University Darmstadt
- The Finnish Institute of International Affairs

North America

- Université de Lausanne
- Université Paris Ouest Nanterre La Défense
- Universiteit van Amsterdam
- University of Copenhagen
- University of Helsinki
- University of Manchester
- University of Oxford

Africa

- Moroccan Foundation for Advanced Science, Innovation and Research

Asia

- Beijing University of Technology
- Fudan University
- Hebrew University of Jerusalem
- Indian Statistical Institute
- Seoul National University
- The University of Hong Kong

North America

- Baylor College of Medicine
- Beth Israel Medical Center
- California Institute of Technology
- California State University
- Canada's National Laboratory for Particle and Nuclear Physics (TRIUMF)
- Carnegie Mellon University
- George Mason University
- Harvard Medical School
- Massachusetts Institute of Technology
- Northwestern University
- Rice University
- University of California, Davis
- University of California, Irvine
- University of Kentucky
- University of Victoria

University-Industry Co-Creation

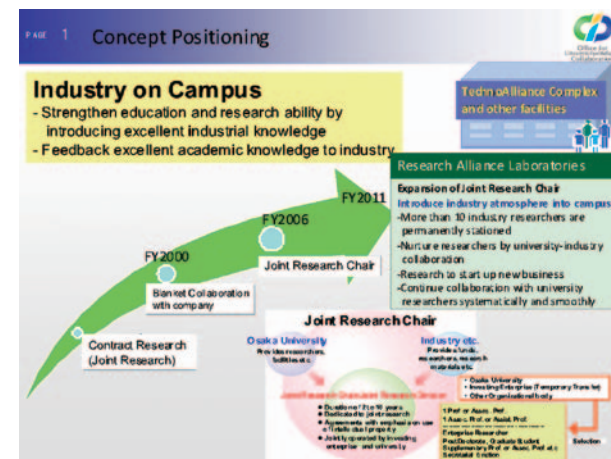
From collaboration to co-creation

The University-Industry Collaboration Board was newly established in August 2015 to attempt effective integration of the functions in Department of Innovation, Department of Planning and Promotion, Department of Intellectual Property Management, and Osaka University Venture Capital Co., Ltd.. According to the next generation of concept in Osaka University, "From

collaboration to co-creation" in between the University and Industries, the University-Industry Collaboration Board will make efforts to coordinate environment which strategically promotes open innovation in between Osaka University and Industries so as to return the profits of outstanding breakthrough invented in Osaka University to society.

Planning and Promotion Department

Mission of Planning and Promotion Department is commercialization of university researchers achievement by connecting industry and university. Actual activities to realize this mission are promotion of joint research and contract research, distribution of researchers achievement by holding matching events, raising Gap Fund to support researchers, organizing consortium to support establishing start-up company, holding entrepreneurship training course such as GTEC (Global Technology Entrepreneurship and Commercialization). To strengthen university industry collaboration Osaka University have started new collaboration scheme of Joint Research Chair in 2006 and Research Alliance Laboratory in 2011. Setting up new collaboration system is also a mission of Planning and Promotion Department. Other aspect of the mission is supporting drug discovery research work. We are providing equipment of drug discovery such as HTS for researchers of inside/outside Osaka University and supporting them.



Intellectual Property Management

The intellectual property-related activity at the University is intended to make a positive social contribution, serving the progress of mankind in general and regional development by publishing advanced and innovative breakthrough research results in the form of intellectual property and returning the benefits widely to society.

Intellectual property rights created by faculty and staff based on the research results obtained during professional duty at the University shall belong to the University.

Exploitation of intellectual property shall be promoted through activities related to industry-academia collaboration in accordance with the phase of the study,

such as the initial phase when joint research is developed with business corporations, and the application phase when such achievements are transferred to society as a result of joint research with business corporations or other entities. Furthermore, exploitation of intellectual property shall be promoted in various ways such as technical transfer by TLO, establishment of the University start-ups, etc.

Intellectual Property Management shall be in charge of establishment of strategy and related work for the creation, management and exploitation of intellectual property for the whole university; patent marketing activity, cooperation with external TLO, financial administration related to intellectual property, and assistance in concluding agreements for joint research, commissioned research and MTAs (Material Transfer Agreement) etc.

Department of Innovation

The core mission of the department is to develop innovators who have high expertness and can contribute to creation of social impact through industrial implementation of research results from a global perspective. Utilizing Innovation Ecosystem, including global networks widely built between university and industries, various programs to realize the mission are running under the initiative of the department.

Enhancing Development of Global Entrepreneur "EDGE" Program is designed to enhance mindsets of students and young researchers toward commercialization of their technologies. GO_UCSD Program, a sub-program of EDGE program, is made available in collaboration with von Liebig Entrepreneurism Center, University of California, San Diego, and provides students with a solid foundational framework enhanced

GO_UCSD 2015 Fall Program



OUGC

In fiscal year 2012, 100 billion yen was invested by the Japanese government into the four national universities (University of Tokyo, Kyoto University, Osaka University, Tohoku University). Out of it 16.6 billion yen was invested in Osaka University and "Osaka University Venture Capital Co., Ltd. (OUGC)" was established as wholly owned subsidiary of Osaka University with capital of 70 million yen on December 22, 2014.

On July 31, 2015, 13 billion yen fund "OUGC Fund 1" was launched through investments by Limited Partner investors including Osaka University and the investment business started. The mission of OUGC is to catalyze innovative entrepreneurial ventures driven by breakthrough technology developed in Osaka University, to create new industries and jobs for economic growth and regional development, and to create a lasting entrepreneurial culture that can contribute to Osaka University's global reputation as a leading research institute.

The OUGC focuses on ventures of three categories arising out of Osaka University: ① seed and early

by real-world experience.

CLIC (Cooperation toward Leadership in Innovation Challenge) helps students find internship opportunities with industries, which are best fitted to their scientific expertise and career development.

"e-Square" (Science & Technology Entrepreneurship Laboratory) is a common base for practical education that fosters students' creativity, project research that promotes circulation of knowledge, and the formation of a multi-disciplinary community.

stage startups, ② joint ventures from corporate-funded research, ③ existing entrepreneurial ventures. Through OUGC's venture investment, Osaka University expects to build innovation ecosystem to commercialize research and seeds of Osaka University, contribute to the society through venture's businesses, gain economic benefits in return for such social contribution and reinvest further in research and development.



Academic Programs and Admission

Degree Programs

Undergraduate Program (Bachelor's Degree Program)

Each of the eleven Schools offers an undergraduate program.

Students enrolled in one of these programs study for a period of four years. Students enrolled in the Faculty of Medicine's Medical School, the School of Pharmaceutical Sciences' Department of Pharmacy, and the School of Dentistry study for a period of six years. All undergraduate students are required to undergo the General Education Program (a program that covers a wide range of specialty and liberal arts courses) for their first three semesters (one and a half years) after entering the university. The General Education Program is offered at the Toyonaka Campus.

Application Conditions for Unsponsored International Students (except for degree programs in English):

International applicants (students from outside of Japan) must meet one of the following criteria by March 31st of their year of enrollment.

For example,

- Those who have completed a standard 12-year school education curriculum of a country other than Japan.
- Those who are at least 18 years of age and who have passed an examination in a country other than Japan which certifies that they have scholastic ability equivalent to a person who has completed a standard 12-year school education curriculum in the said country.

* In principle, international applicants required to take the TOEFL and the "Examination for Japanese University Admission for International Students" (EJU) conducted by the Japan Student Services Organization (JASSO), having taken the designated subjects in the determined period of time, and having scored at least the minimum amount of points determined by the faculty or school one is applying to. The Faculty of Medicine's School of Allied Health Sciences, the School of Dentistry, and some majors in the School of Foreign Studies do not require the TOEFL.

* The most current details regarding application requirements and entrance methods can be confirmed at Osaka University's website. It is recommended that one contact the Admission Division before applying if one has further questions.

(www.osaka-u.ac.jp/en/admissions)

(www.osaka-u.ac.jp/en/admissions/faculty/expense)

Graduate Program (Master's Degree and Doctor's Degree Programs)

Each of the sixteen graduate schools at Osaka University implements graduate programs. These graduate programs are generally composed of two courses: the Master Course (first two years) and the Doctor Course (a continuation for those who have completed the Master Course). Students who have completed the Master Course are granted a master's degree; students who have completed the Doctor Course receive a doctor's degree.

The Doctor Course generally takes place after the Master Course and has a duration of three years. The Doctor Course for the Graduate School of Medicine (major in Medicine), the Graduate School of Dentistry, and the Graduate School of Pharmaceutical Sciences (major in Medical Pharmacy) have a duration of four years. The Graduate School of Frontier Biosciences has a 5-year intensive doctor course. The Law School program has a duration of three years, and upon completion students are granted a Juris Doctor's Degree.

Main Application Conditions for Unsponsored International Students:

For Information regarding admissions to the Graduate Programs, please visit our graduate school websites.

Main Application Conditions for Master Courses, the Doctor Course of the Graduate School of Frontier Biosciences and the Law School:

One of the following conditions must be fulfilled.

- Completed 16 years of schooling in a country other than Japan
- Graduated from a Japanese university
- Recognized and approved as having academic ability equivalent to the above by the Ministry of Education, Culture, Sports, Science and Technology or the graduate school concerned

Main Application Conditions for Doctor Courses:

Either of the following conditions must be fulfilled.

- Obtained a master's degree or professional degree
- Recognized and approved as having academic ability equivalent to the above by the Ministry of Education, Culture, Sports, Science and Technology or the graduate school concerned

Main Application Conditions for Doctor Courses (major in Medicine the Graduate School of Medicine, the Graduate School of Dentistry, major in Medical Pharmacy of the Graduate School of Pharmaceutical Sciences):

One of the following conditions must be fulfilled.

- Completed 18 years of schooling in a country other than Japan. However, to enter the Doctor Course in Medicine and Dentistry students must have graduated from a university School of Medicine, School of Dentistry, School of Pharmacy, or School of Veterinary Medicine (course requiring six years of study for graduation)
- Graduated from a Japanese university School of Medicine, School of Dentistry, School of Pharmacy, or School of Veterinary Medicine (course requiring six years of study for graduation)
- Recognized and approved as having academic ability equivalent to the above by the Ministry of Education, Culture, Sports, Science and Technology or by the graduate school concerned

FOUR TYPES of INTERNATIONAL STUDENTS

Japanese Government Scholarship Students (Monbukagakusho Scholarship)

Japanese Government Scholarship Students are able to enter Japanese universities with an exemption of the entrance examination fee, enrollment fee and tuition fees. Furthermore, they are granted a scholarship stipend every month. Japanese Government Scholarship Students are able to enroll in Osaka University as "Undergraduate Students," "Research Students (graduate students)," "Japanese Studies Students" or "Teacher-Training Students."

Before coming to Japan, there are two ways of applying to this program: "Embassy Recommendation" and "University Recommendation." For further detailed information including application conditions and procedures, please contact the Japanese Embassy located in your home country for "Embassy Recommendation," or the relevant office of the specific school/graduate school, or the faculty member you would like to have as an academic supervisor for "University Recommendation."



Foreign Government Sponsored Students

The Japanese Government is currently accepting students who are sponsored by their home countries of Malaysia, Thailand, Singapore, the United Arab Emirates, Saudi Arabia, Brazil. For further detailed information including application conditions and procedures, please contact the appropriate government agency of these countries.

Unsponsored International Students (Privately Financed International Students)

International students not receiving a scholarship from the Japanese Government or from the government of their own countries are categorized as "Unsponsored International Students."

Short-Term Exchange Students (from partner universities¹)

Osaka University has formed student exchange agreements with universities abroad, accepting non-degree exchange students from these universities for one year or less, granting entrance examination fees, enrollment fees and tuition fee waivers. During the exchange period, short-term exchange students will continue their enrollment at their home university. Depending upon their home university, credits earned at Osaka University can be counted as required credits for graduation. For further detailed information including application conditions and procedures, please contact the office in charge of international student exchange at the university you are currently enrolled at.

¹The universities marked with a "※" among those listed on p.96-97 fit the universities described here.

Global Admissions Office

Osaka University established the Global Admissions Office on June 1, 2014. This office aims to contribute to admitting outstanding students from abroad and to promoting the globalization of education at the University by developing procedures and measures for screening applicants and implementing such procedures and measures in a multilateral and comprehensive manner.



Degree Programs in English

Undergraduate

Human Sciences International Undergraduate Degree Program offers students an interdisciplinary program in English with two integrated majors: Global Citizenship and Contemporary Japan. In the first three semesters students complete foundation courses that equip them with a range of transferable skills, including data processing, research methodology and critical thinking. At the same time, we introduce students to a number of disciplinary approaches to studying global citizenship and contemporary Japan. Students will also study the Japanese language and can register for some regular Human Science Courses if their proficiency level is sufficient. From the fourth semester students will take advanced courses as they build specialized knowledge in their chosen major. For more details see <http://g30.hus.osaka-u.ac.jp/>.

The Chemistry-Biology Combined Major Program will offer students a new opportunity to learn two fundamental and interacting fields and prepare them for the challenges of rapidly advancing scientific frontiers (Admission in October). (cbcmp.icou.osaka-u.ac.jp/)

Graduate

The Special Integrated Science Course is a graduate program for students in biology, chemistry, and macromolecular science. The program is designed to train the next generation of cutting-edge scientists (Admissions in October and April). (www.bio.sci.osaka-u.ac.jp/global30/SISC)

The International Physics Course is a graduate course for students who have completed an undergraduate major in physics or the equivalent. The course is designed so that students can work as active members in international collaborations, whether in theory or experiments, for example with large-scale facilities (For admissions, please refer to the website below.). (www.rcnp.osaka-u.ac.jp/~IPC)

Biotechnology Global Human Resource Development Program is a five-year program for master's and doctor's degrees which aims to expose young scientists to state-of-the-art research and in-depth knowledge of advanced biology, chemistry and physics to harness the potential of biotechnology. Students having completed the Chemistry-Biology Combined Major Program can take this program.

“Engineering Science 21st Century” Program promotes trans- and multi-disciplinary topmost research and education as the “Engineering Science 21st Century” Program among emerging specialized areas of science and technology such as materials science, chemical engineering, chemistry, materials physics and nanotechnology; mechanical science/engineering, nonlinear mechanics, mechatronics, bio-mechanics/

physics and biomedical engineering; and system innovation including opto-electronics, systems science and applied information, robotics, and mathematical science. (www.es.osaka-u.ac.jp/en/programs/admissions.html)

International Program of Maritime and Urban Engineering in the Graduate School of Engineering, Osaka University, offers an international course using English as the language of instruction toward advanced degrees in Maritime and Urban Engineering. The aim of this course is to educate a new generation of young scientists with fundamental knowledge and state-of-the-art research skills in this area to realize safer and more efficient construction, infrastructure and transport systems with a cleaner environment. (maritime-urban.naoe.eng.osaka-u.ac.jp/)

The Quantum Engineering Design Course provides students with up-to-date and world-class research techniques to advance Quantum Engineering Design in response to global, technological and environmental challenges. The core divisions are “frontier mathematical methods,” “elucidation of emergent material function” and “realization of new generation functional materials.” (www.dyn.ap.eng.osaka-u.ac.jp/QEDC/index.html)

Information Technology Special Course in English covers the wide range of information science and related fields such as a hardware, software and “human-ware” for information and network technologies. This program is a cross-departmental 5-year Doctor Course program, which is promoted by the whole graduate school. We welcome the students with a particular interest in information science and technology wishing to make contributions to the advanced information society of the 21st century. (www.ist.osaka-u.ac.jp/english/)

The Chemical Science Program at Osaka University offers postgraduate students both the Masters and Ph. D. degrees and covers all aspects of “Chemistry”, the center of science. “Chemistry” provides a broad and comprehensive program that serves as the basis of societal needs with respect to chemistry and provides keys for the future. The Chemical Science Program is designed to provide a seamless postgraduate program that integrates both the Masters and Ph.D. degrees. In the initial years, you will acquire and establish a fundamental basis for applied chemistry in the fields of Physical Chemistry, Synthetic Chemistry, and Biological Chemistry. In the second year, the program is geared towards developing within each student the ability to perform creative scientific research and to think creatively. Thereafter, students will become involved in library research related to their projects and will prepare to begin actual experimental or theoretical studies. (www.chem.eng.osaka-u.ac.jp/appl/eng/index_e.html)

The Frontier Bioscience Course is a graduate program for students who are interested in various life phenomena and functions at molecular, cellular, organ, and animal individual levels. The program gives students a multi-faceted approach to their research questions and a comprehensive education experience so that they can become leading researchers upon graduation. (<http://www.fbs.osaka-u.ac.jp/index-e.php>)

Non-Degree Programs

Programs for Short-Term Exchange Students

There is a wide variety of one-year (or less) short-term programs prepared for international students from the universities abroad that have student exchange agreements with Osaka University (so called as “exchange students”).

Within these programs, there are a number of classes that Japanese students may also participate in. Through these classes, close interaction with Japanese students can be acquired.

For applications and inquiries on these programs, please contact the appropriate office in charge of international student exchange at the university you are currently enrolled in.

OUSSEP

(Osaka University Short-term Student Exchange Program)

OUSSEP has been designed to give students from overseas universities who have not studied Japanese an opportunity to earn transferable credits at Osaka University under the close coordination of the Center for International Education and Exchange. 3rd and 4th year undergraduate students of their home university can study a variety of subjects in fields such as the natural sciences, social sciences, arts and foreign studies in English for 1 year (2 semesters) (Full-year OUSSEP) or half a year (1 semester) (Half-year OUSSEP), from April or late September. In addition to this, independent research may also be conducted.

(www.osaka-u.ac.jp/en/international/inbound/exchange_program/oussep)

Maple

Maple is a special Japanese Culture-Language program designed to raise talented people capable of understanding Japan in a diverse way from a comparative and contrastive viewpoint. Participating students will be able to select Japanese courses from elementary-intermediate to advanced levels based on their Japanese proficiency. Students will also take comparative research classes conducted in English, comparing and contrasting the language and cultural differences between their home country and Japan, as well as take specialized Japanese culture and language seminars focused on understanding intercultural differences with Japanese students. In addition to this, independent research may also be conducted. The program is held from late September to August of the following year (2 semesters), and mainly accepts 3rd and 4th year undergraduate students from their currently enrolled university.

(www.cjlc.osaka-u.ac.jp/program/m)

FrontierLab@OsakaU

The FrontierLab@OsakaU program is designed to nurture originality in students by offering potential research directions in a wide range of fields and emphasizing hands-on laboratory experience. Each participant will be assigned to a particular research group in one of Osaka University's internationally renowned science and technology fields. Thematic studies will be conducted through experiments, peer consulting, group work and interactive discussions under the close supervision of the faculty. The program will be conducted in English or Japanese.

The program focuses on foreign undergraduate students who have completed their 1st and 2nd year of study at their enrolled university and graduate students.

The following two types are offered:

Credited Research

- Applicable for both undergraduate and graduate students
- Participants will conduct credited research supervised by faculty members. With the advice of their supervisors, participants may attend Japanese language courses or courses relating their own study fields.

Non-credited Research

- Applicable for graduate students only
- Participants will conduct research supervised by faculty members, but are unable to participate in coursework that will grant credits

(www.osaka-u.ac.jp/en/international/inbound/exchange_program/frontierlab)

iExPO (immersion Exchange Program Osaka)

This program is intended for undergraduate/graduate international students to study for 1 or 2 semester (s), selecting and attending classes that are originally intended for Japanese students. Classes eligible for attending are determined by each school/graduate school. (www.osaka-u.ac.jp/en/international/inbound/exchange_program/iexpo)

Research Students

The research student system enables students to enter schools or graduate schools to research a specific subject/field as “research students,” with the permission of the schools or graduate schools concerned. However, students enrolled are unable to receive a degree or credits. In addition to schools and graduate schools, research institutes, joint-use facilities, and national joint-use facilities also accept research students.

For further information, please contact the relevant school/facility.

CAREN Program

CAREN

(Center for the Advancement of Research and Education Exchange Networks in Asia)

Established in April 2014 with the objective of enhancing Osaka University's international profile, CAREN channels and coordinates many of the university's endeavors to internationalize and acts as a gateway to knowing more about the university. Working with a team of members that currently cover five graduate schools (Engineering, Engineering Science, Science, Information Science and Technology, and the Osaka School of International Public Policy), CAREN undertakes to realize the following visions:

- Strengthen existing international programs and develop new ones
- Learn about curricula and education environments abroad
- Initiate and conduct new credit-exchange and double-degree programs
- Establish common entrance examination systems for international programs
- Promote the setting up of new courses and programs in English
- Enhance living conditions for international students
- Initiate programs for Japanese students and faculty to study and conduct research abroad
- Initiate English-learning programs for Japanese students in universities abroad
- Support development of e-learning and distance learning resources
- Plan and support relevant international workshops and symposia
- Establish an alumni association for international students
- Connect to people and raise awareness of the program's achievements



CAREN members explaining Osaka University's English programs at the ASEAN Career Fair 2015 in Singapore

One of the distinguished achievements of CAREN so far is the establishment of 16 double-degree programs in five graduate schools (as of December 2015) with the following:

- Germany: The University of Giessen
 - Indonesia: Institut Teknologi Bandung
 - Kazakhstan: Al Farabi Kazakh National University
 - Malaysia: Malaya University
 - The Philippines: De La Salle University, Philippine Normal University
 - Taiwan: National Tsing Hua University
 - Thailand: King Mongkut's University of Technology, Thonburi, Mahidol University
 - Vietnam: Ho Chi Minh City University of Science
- (in alphabetical order)

For further inquiries, visit CAREN's website (<http://caren.eng.osaka-u.ac.jp/>) and contact us at contact@caren.eng.osaka-u.ac.jp



Support and Other Information

Fees and Financial Support

Tuition Fees*

Category	Entrance Examination Fee	Enrollment Fee	Tuition Fee
Undergraduate Student	17,000 yen	282,000 yen	535,800 yen/year
Graduate Student	30,000 yen	282,000 yen	535,800 yen/year
Law School Student	30,000 yen	282,000 yen	804,000 yen/year
Research Student	9,800 yen	84,600 yen	28,900 yen/month
Auditor / Credited Auditor	9,800 yen	28,200 yen	14,400 yen/credit

*These fees may be subject to change.

Enrollment fee and Tuition Fee Exemption / Reduction

Un-sponsored international students (full-time private students in the undergraduate/graduate courses) who have difficulty in paying the enrollment fee and tuition fee and have an outstanding academic record may apply for enrollment fee and tuition fee exemption.

The ratio of enrollment and tuition deduction is either full reduction or half reduction.

Enrollment and tuition fees can be exempted within the limit of our budget.

Scholarships for Un-sponsored International Students

Offered by the Japan Student Services Organization (JASSO) and private scholarship organizations, there are scholarships provided to un-sponsored international students with outstanding academic records and personal integrity who have financial difficulties. The monthly amount of the scholarship varies from ¥30,000 to ¥200,000, but most amounts are between ¥50,000 and ¥100,000.

Currently, about 40% of the un-sponsored international students at Osaka University receive some form of financial aid. The applications for many scholarships are processed through the administrative office at the school/graduate school where students are enrolled.

Information on scholarships is also available through JASSO (www.jasso.go.jp/study_j/scholarships_e.html).

Most of the scholarships may be applied for after entering the university.

Accommodation

Dormitory for International Students (Osaka University Dormitory, Public Dormitory)

The number of residences being managed by Osaka University and public organizations is limited. The rent for these facilities is comparatively cheaper than private housing.

(www.osaka-u.ac.jp/en/international/inbound/support/residence.html)

Osaka University Residence Halls

Residence	Suita International Student Dormitory	Tsukumo-dai International Student Dormitory	Toyonaka Campus International House		
Room Type	Single	Single	Family	Couple	Single
No. of units	76	119	13	17	70
Monthly Rent	14,000 yen	17,000 yen	17,000 yen	15,000 yen	13,000 yen

Residence	Niina International Dormitory	Minoh International Student Dormitory	Minoh International Student House
Room Type	Single	Single	Single
No. of units	12	117	40
Monthly Rent	14,000 yen	12,000 yen	12,000 yen

Residence	Seimei Student Dormitory	Momiji Student Dormitory	Toneyama Student Dormitory
Room Type	Single	Single	Single
No. of units	75	48	58
Monthly Rent	5,900 yen	5,900 yen	5,900 yen

※As of April 1st, 2016

These fees may be subject to change.

※Common facilities fees do not include in these fees.



Other Alternatives

Due to the limited capacity at University dormitories, most of the international students need to find their housing outside of the campus. Since there are special Japanese customs in this process, it may be difficult to understand when trying to find a place for the first time.

Dormitories operated by international students support organizations: there are some dormitory-type facilities which are usually applied through each administrative office at Schools / Graduate Schools upon an official announcement made by International Student Affairs Division when there are some openings.

Private Housing: Rooms are usually unfurnished. Rents vary according to the location, the size of the apartment, its age, the degree of furnishing, and whether or not there is a view. Looking on the internet or in rental-housing magazines in advance should provide general information about options in the local area. Generally, a six to seven

month’s rent will be expected as a total initial cost, such as a rental deposit, security deposit, key money, broker’s commission and other fees.

The Support Office for International Students and Scholars at the Center for International Education and Exchange (see p. 94: <https://iss-intl.osaka-u.ac.jp/supportoffice>) and the advising room for international students at each School/Graduate School offer housing assistance.

Also, the Osaka University CO-OP welcomes international students to give them a real estate service with a variety of property information around the campus.

Apartments		
Type	Deposit	Rent Per Month (Excluding Utilities)
Studio (One Room)	100,000yen – 450,000yen	30,000yen – 70,000yen
Apartment (Two Rooms)	150,000yen – 500,000yen	50,000yen – 120,000yen

Cost of Living (excluding academic fees)

Food	¥27,000 (US\$250.0)
Rent	¥34,000 (US\$314.8)
Utility charges (electricity, gas and water)	¥8,000 (US\$74.1)
Communication expenses	¥4,000 (US\$37.0)
Insurance & medical	¥3,000 (US\$27.8)
Hobby & entertainment	¥5,000 (US\$46.3)
Miscellaneous	¥7,000 (US\$64.8)

※ Calculated at US\$1=¥108
Source:Lifestyle Survey of Privately Financed International Students 2013 (JA SSO)

Health Insurance

International students who reside legally in Japan longer than three months are required to join the insurance program called Kokumin Kenko Hoken (National Health Insurance). They can enroll in the program at the City Office where their address is registered. By paying the premiums and presenting the certificate, the insurance covers about 70% of the expenses for most of medical care and hospitalization.

Support and Exchange Activities

At Osaka University, we are endeavoring to equip and sustain systems designed to help the study and research of international students and visiting scholars progress smoothly.

Counseling, Advice

With the cooperation of counselors and special academic advisors, the Center for International Education and Exchange provides international students with various types of advisory services related to living in Japan and studying at Osaka University. Students may also use advising rooms for international

students that are provided independently by some of the schools/graduate schools (separate from the service above).

- Japanese Language and Culture Programs**
The following programs are offered:
- Japanese language courses for international students (Provided by the Center for International Education and Exchange)
 - Japanese programs for specialized fields, implemented by some of the scientific and engineering schools/graduate schools
 - High-level Japanese learning programs designed for undergraduate Japanese Government Scholarship Students, specializing in Japanese studies (provided by the Center for Japanese Language and Culture)
 - Japanese Culture-Language programs for short-term exchange students (Maple Program) (Provided by the Center for Japanese Language and Culture)
 - Japanese preliminary language programs for Japanese Government Scholarship Students and KOSMOS (Korean Students of Science Major at Osaka University with Special Scholarship) students (Provided by the Center for International Education and Exchange the Center for Japanese Language and Culture)

Exchange Activities

- International students can broaden friendship and communication with both international and Japanese students, as well as the faculty, staff and local residents by actively participating in a variety of the following support and exchange programs, mainly organized by the Center for International Education and Exchange.
- Cultural exchange events for international students and local residents
 - Home visits (a chance to participate in Japanese daily life)
 - International understanding programs with local schools
 - Inter-exchanges between international students and Japanese students (parties, campus tours, help with the Japanese language, and school and local events and festivals), provided by the international students association and student volunteer groups

Tutor Program

The One-on-one peer tutor program provided by Center for Education in Liberal Arts and Sciences is available to undergraduate students for their first one and half years at Osaka University. The tutors are mainly senior students, majoring in courses relating to the major of the respective international student. They help the international students improve their Japanese skills and provide learning support and guidance for matters in daily life.

OUISA (Osaka University International Student Association) & International Student Associations at Osaka University
OUISA supports the lives of international students with their needs in mind. OUISA works closely with IRIS (Information Room for International Students) in organizing various kinds of events and activities for international students and for international activities.

Every year OUISA selects the committee members in managing and running OUISA for that year. By joining OUISA activities, which are often in close cooperation with B.S.P. (Brothers and Sisters Program), students get to meet and make friends from around the world. Having a network of good friends and community will help them in their student life at Osaka.

In addition to OUISA, there are many international student associations at Osaka University. Students can keep contact with those friends who share the same backgrounds while they study at Osaka. It must be added that IRIS works closely with these student associations. IRIS, OUISA, and these student associations, in cooperation with other concerned people, all work in support of international students at Osaka University.



Useful Links	
Osaka University	www.osaka-u.ac.jp/en
Graduate & Undergraduate Schools & Facilities	www.osaka-u.ac.jp/en/academics
Admissions	www.osaka-u.ac.jp/en/admissions
Prospective Students	www.osaka-u.ac.jp/en/for-examinee
General Information of Financial Aid	www.osaka-u.ac.jp/en/guide/student/tuition
Overseas Centers (San Francisco, Groningen, Bangkok and Shanghai)	www.osaka-u.ac.jp/en/international/action/branch.html
Partner Universities	www.osaka-u.ac.jp/en/international/action/exchange/index.html

Other Useful Links	
JASSO (Japan Student Services Organization) Information on Study in Japan, Japan Education Fair, etc.	www.jasso.go.jp/index_e.html
STUDY IN JAPAN Comprehensive guide for prospective students, for foreign students in Japan, for former foreign students	www.studyjapan.go.jp/en/index.html
Japanese Embassies (If you want to obtain the information on Japan pre-arrival scholarships offered by the Japanese Government, please refer to the Japanese Embassy in your country.)	www.mofa.go.jp/about/emb_cons/mofaserv.html

IRIS (Information Room for International Students)

IRIS is where international students can visit anytime when they have questions or problems. As one international student said, "It's my home in Japan," IRIS always listens and helps students in solving problems. IRIS is also where international students can spend their free time, such as eating lunch and/or chatting with other international and local students, over a cup of coffee or tea.

What is more, IRIS supports various kinds of student activities on international exchanges such as by OUISA (Osaka University International Student Association) and B.S.P. (Brothers and Sisters Program). Furthermore, IRIS works in close cooperation with local communities and schools, such as in organizing home-visit type host family programs and school visit programs.



Support Office for International Students and Scholars

The Support Office provides various types of the assistance for international students, scholars and their families. The assistance includes the procedures for their CESR (Certificate of Eligibility for Status of Residence), the search for accommodations and the additional procedures before and after their arrival in Japan.

The Support Office also provides necessary information by orientation meetings for newcomers, handbooks/guidebooks, and the website.

Support Office:
<https://iss-intl.osaka-u.ac.jp/supportoffice>



Overseas Alumni

To date, degrees have been awarded to approximately 228,000 students at Osaka University and many are working extensively in various fields throughout the world.

The University has established overseas centers in four locations: North America (San Francisco), Europe (Groningen), ASEAN (Bangkok) and East Asia (Shanghai) as bases for international exchange activities overseas to support local alumni association efforts and to work closely with the alumni themselves.

As a forum of exchange for overseas alumni, the University boasts the Osaka University North American Alumni Association (OUNAAA), the Osaka University Alumni Association of Europe (OUAAE), the Thai Osaka University Alumni Club (TOUAC) and the Osaka University Shanghai Alumni Association(OUSAA). Furthermore, there are also department, division and school reunions at overseas branches where alumni deepen friendships and further enhance collaboration and cooperation.

Other reunions are also held in various places and graduates are actively warming old friendships in many parts of the world.



Thai Alumni Reunion (Nov. 2015)

Alumni Association Name	Overseas Center
Osaka University North American Alumni Association (OUNAAA)	North American Center for Academic Initiatives (San Francisco Office)
Osaka University Alumni Association of Europe (OUAAE)	European Center for Academic Initiatives (Groningen Office)
Thai Osaka University Alumni Club (TOUAC)	ASEAN Center for Academic Initiatives (Bangkok Office)
Osaka University Shanghai Alumni Association (OUSAA)	East Asian Center for Academic Initiatives (Shanghai Office)

Department Name	Branch Name	Country	City	URL
School of Letters Graduate School of Letters (Alumni Association of the School of Letters and Graduate School of Letters)	Korean Branch	Korea	Seoul	http://sakuyakai.net/
	Hong Kong Branch	China	Hong Kong	
	Beijing Branch	China	Beijing	
	Shanghai Branch	China	Shanghai	
	Seoul Branch	Korea	Seoul	
Alumni Association of Osaka University, School of Foreign Studies and Osaka University of Foreign Studies "SAKUYAKAI"	Manila Branch	Philippines	Manila	
	Jakarta Branch	Indonesia	Jakarta	
	Bangkok Branch	Thailand	Bangkok	
	Düsseldorf Branch	Germany	Düsseldorf	
	Paris Branch	France	Paris	
	New York Branch	U.S.A.	New York	
	Los Angeles Branch	U.S.A.	Los Angeles	
	Saõ Paulo Branch	Brazil	Saõ Paulo	
	Moscow Branch	Russia	Moscow	
	Sydney Gaigo* Association	Australia	Sydney	
	Yangon Gaigo* Association	Myanmar	Yangon	

* School of Foreign Studies

Campus Life

The Best Facilities for the Best Students

Osaka University's three campuses, Suita, Toyonaka, and Minoh, are connected by monorail and a free shuttle bus service. Each campus has facilities that are needed in daily life such as cafeterias, food stores, bookstores, stationary stores, a housing support corner, travel centers, and ATMs. And Suita and Toyonaka campuses have post offices and barbershops.

As a result, students can enjoy a convenient campus life while undertaking in their studies.

Each campus has a health care center where consultation services on health and medical care (internal medicine) is offered. Every year, regular medical checkups for students and medical consultations are given at the center.



Club Activities

Enrich your School Life with Sports, Clubs, and Cultural Activities

Osaka University offers a vast array of sports facilities such as athletics grounds, gymnasiums, swimming pools and more. Of the athletics fields on Osaka University's three campuses, the field on Suita campus was recently resurfaced making it the University's first all-weather area with artificial turf.

Osaka University has 58 sports groups, which range from traditional martial arts to modern outdoor sports. There are also 70 extracurricular cultural groups at the University.

Students are able to travel beyond their fields of research and deepen their friendships through these activities.

Osaka University emphasizes activities that nurture human relationships through several competitions, and supports students through the maintenance of equipment and facilities.



Academic Exchange Agreements with Universities Abroad

109 Inter-University and 531 Inter-Faculty Exchange Agreements

Osaka University has concluded academic exchange agreements with universities and institutions throughout the world for both inter-university and inter-faculty exchanges. Extensive exchanges of students, researchers and joint research projects are being conducted with these partner institutions.

Mutual tuition waivers may be implemented for students who participate in exchange programs with the universities marked with a “*” in the following list :

Inter -University Exchange Agreements

(as of February 1, 2016)

Country / Region
University/Institution *
* => Mutual Tuition Waivers may be implemented

Russia

Saint Petersburg State University *
Russian Academy of Sciences

Finland

Åbo Akademi University *

Sweden

Karolinska Institutet
Royal Institute of Technology (KTH) *
University of Gothenburg *

Denmark

The University of Copenhagen *

UK

The University of Nottingham *
The University of Sheffield *
University of Leeds *
University College London

Netherlands

Delft University of Technology *
University of Groningen *

Spain

Universidad Autónoma de Madrid *
University of Valladolid *

France

Centre National de la Recherche Scientifique
École Nationale Supérieure de Chimie de Paris *
Grenoble Universités (Consortium of Universities in Grenoble) *
Pierre & Marie Curie University *
University of Bordeaux *
University of Strasbourg *
Université d'Aix-Marseille *

Belgium

Interuniversitair Micro-Electronica Centrum vzw (IMEC)
Université catholique de Louvain (UCL) *

Switzerland

École Polytechnique Fédérale de Lausanne (EPFL) *
ETH Zürich *

Germany

Bielefeld University *
Friedrich-Alexander Universität Erlangen-Nürnberg *
Heidelberg University *
Johann Wolfgang Goethe-Universität Frankfurt am Main *
Ludwig-Maximilians- University of Munich *
Ruhr –University Bochum *

RWTH Aachen University *
Technische Universität Berlin *
Technische Universität München *
University of Augsburg *
University of Göttingen *

Qatar

Qatar University *

Austria

The University of Vienna *

Egypt

Alexandria University *

Hungary

Eötvös Loránd University (ELTE) *

Saudi Arabia

King Abdulaziz University

Thailand

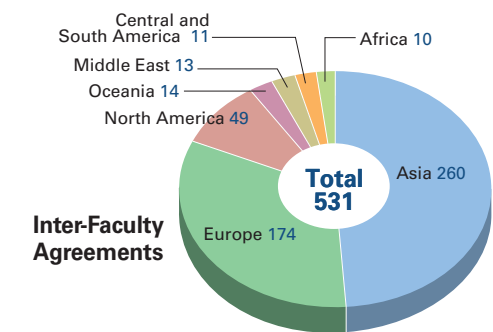
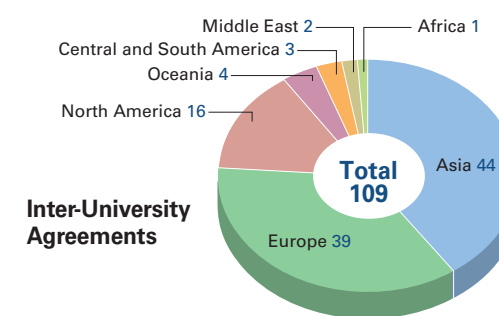
Chiang Mai University *
Chulalongkorn University *
Department of Medical Sciences, Ministry of Public Health
Kasetsart University *
King Mongkut's University of Technology Thonburi *
Mahidol University *
Thammasat University *

Myanmar

University of Yangon *

India

Indian Institute of Technology Hyderabad *



Mongolia

National University of Mongolia *

Canada

McGill University *
McMaster University *
The Conference of Rectors and Principals of Quebec Universities
University of British Columbia *
University of Toronto *

USA

Cornell University
Indiana University
Nazareth College of Rochester *
Purdue University *
Rice University *
Texas A&M University *
The University of Georgia *
University of California *
University of California, Berkeley
University of Washington *
Wesleyan College *

Korea

Changwon National University *
Chonnam National University *
Chung-Ang University *
Chungnam National University *
Gyeongsang National University *
Hanyang University *
Pusan National University *
Seoul National University *
Yonsei University *

China

Beijing Normal University *
Fudan University *
Nanjing University *
Peking University *
Shanghai Jiao Tong University *
The Chinese University of Hong Kong *
Tongji University *
Tsinghua University *
Wuhan University *
Xi'an Jiaotong University *
Zhejiang University *

Taiwan

National Cheng Kung University *
National Chiao Tung University *
National Taiwan University *
National Tsing Hua University *

Mexico

National Autonomous University of Mexico *

Peru

Pontifical Catholic University of Peru *

Brazil

Universidade de São Paulo *

Philippines

Ateneo de Manila University *
De La Salle University *
University of the Philippines *

Australia

Monash University *
The Australian National University *
The University of Adelaide *
The University of Queensland *

Vietnam

Vietnamese Academy of Science and Technology
Vietnam National University- Ho Chi Minh City
Vietnam National University, Hanoi *

Indonesia

Institut Teknologi Bandung *
Universitas Gadjah Mada *
Universitas Indonesia *
Universitas Airlangga *

Addresses

(as of December 1, 2015)

• **International Student Affairs Division**
Tel: +81-6-6879-7103 Fax: +81-6-6879-8964
E-mail: kenkyou-r@ml.office.osaka-u.ac.jp

Suita Campus

Tel: +81-6-6877-5111 (Central)
Tel: +81-6-6879-5111 (Central for Faculty of Medicine/Osaka University Hospital/School of Dentistry/Osaka University Dental Hospital/United Graduate School of Child Development)

◎ Schools and Graduate Schools

Human Sciences
1-2 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-8010
E-mail: oie@hus.osaka-u.ac.jp

Medicine
2-2 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-3347
E-mail: i-soumu-syomu@office.osaka-u.ac.jp

Division of Health Sciences
1-7 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-2629
E-mail: kouhou@sahs.med.osaka-u.ac.jp

Osaka University Hospital
2-15 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-5019

Dentistry
1-8 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-2832
E-mail: si-soumu-kyomu@office.osaka-u.ac.jp

Osaka University Dental Hospital
1-8 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-2861

Pharmaceutical Sciences
1-6 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-8154
E-mail: yakugaku-kyoumu@office.osaka-u.ac.jp

Engineering
2-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-7229
E-mail: iso-staff@eng.osaka-u.ac.jp

Information Science and Technology
1-5 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-4570
E-mail: office@ist.osaka-u.ac.jp

Frontier Biosciences
1-3 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-4420
E-mail: seimei-daigakuin@office.osaka-u.ac.jp

United Graduate School of Child Development, Osaka University, Kanazawa University, Hamamatsu University School of Medicine, Chiba University and University of Fukui
2-2 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-3347
E-mail: office@ugscd.osaka-u.ac.jp

◎ Research Institutes

Research Institute for Microbial Diseases
3-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-8266
E-mail: biken-kenkyo@office.osaka-u.ac.jp

The Institute of Scientific and Industrial Research
8-1 Mihogaoka, Ibaraki, Osaka 567-0047
Fax: +81-6-6879-8509
E-mail: kouhou@sanken.osaka-u.ac.jp

Institute for Protein Research
3-2 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-8590
E-mail: tanpakuken-kyoudo@office.osaka-u.ac.jp

Institute of Social and Economic Research
6-1 Mihogaoka, Ibaraki, Osaka 567-0047
Fax: +81-6-6879-8583
E-mail: syaken-syomu@office.osaka-u.ac.jp

Joining and Welding Research Institute
11-1 Mihogaoka, Ibaraki, Osaka 567-0047
Fax: +81-6-6879-8689
E-mail: setugouken-syomu@office.osaka-u.ac.jp

◎ Life Sciences Library

2-3 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-2428
E-mail: ls-desk@library.osaka-u.ac.jp

◎ Science and Engineering Library

2-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-7190
E-mail: sl-desk@library.osaka-u.ac.jp

◎ Joint-Use Facilities & National Joint-Use Facilities

Research Center for Nuclear Physics
10-1 Mihogaoka, Ibaraki, Osaka 567-0047
Fax: +81-6-6879-8899
E-mail: director@rcnp.osaka-u.ac.jp

• **International Affairs Division**
Tel: +81-6-6879-7037 Fax: +81-6-6879-7106
E-mail: kokusai-ina@ml.office.osaka-u.ac.jp

Cybermedia Center
5-1 Mihogaoka, Ibaraki, Osaka 567-0047
Fax: +81-6-6879-8814
E-mail: zysui-kikaku-soumu@office.osaka-u.ac.jp

Institute of Laser Engineering
2-6 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6876-4110
E-mail: rezaken-syomu@office.osaka-u.ac.jp

Low Temperature Center
2-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-7986

Research Center for Ultra-High Voltage Electron Microscopy
7-1 Mihogaoka, Ibaraki, Osaka 567-0047
Fax: +81-6-6879-7942

Radioisotope Research Center
2-4 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-8825

Research Center for Environmental Preservation
2-4 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-8978
E-mail: hozen@epc.osaka-u.ac.jp

Center for International Education and Exchange
1-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-8964
E-mail: kokusai-gakusei-ryugakusei@office.osaka-u.ac.jp

International Center for Biotechnology
2-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-7454
E-mail: info@icb.osaka-u.ac.jp

Health Care Center
2-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-4088

Global Center for Medical Engineering and Informatics
2-2 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-3378
E-mail: mei-sec@mei.osaka-u.ac.jp

Global Collaboration Center
2-7 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-4444
E-mail: jimu@glocol.osaka-u.ac.jp

Center for Environmental Innovation Design for Sustainability
2-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6875-6271
E-mail: ceids-jim@ceids.osakau.ac.jp

◎ World Premier International Research Center

Immunology Frontier Research Center
3-1 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-4272
E-mail: ifrec-office@ifrec.osaka-u.ac.jp

◎ Institute for Advanced Interdisciplinary Research

Center for Information and Neural Networks
1-4 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-4308
E-mail: info@cinet.jp

◎ Education & Research Support Organizations

Institute for Academic Initiatives (IAI)
2-2 Yamadaoka, Suita, Osaka 565-0871
E-mail: mirai-soumu@office.osaka-u.ac.jp

Office for Univesity-Industry Collaboration
2-8 Yamadaoka, Suita, Osaka 565-0871
Fax: +81-6-6879-4208
E-mail: contact@uic.osaka-u.ac.jp

Office for Information and Communications Technology Services
5-1 Mihogaoka, Ibaraki, Osaka 567-0047
Fax: +81-6-6879-8814
E-mail: zysui-kikaku-soumu@office.osaka-u.ac.jp

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1-1 Yamadaoka, Suita, Osaka 565-0871
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Radioisotope Research Center (Toyonaka Branch)
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Fax: +81-6-6850-6104

Research Center for Solar Energy Chemistry
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The Museum of Osaka University
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Fax: +81-6-6850-6049

Health Care Center
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Kaitokudo for the 21st Century
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Tekijuku Commemoration Center
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◎ **International Studies Library**
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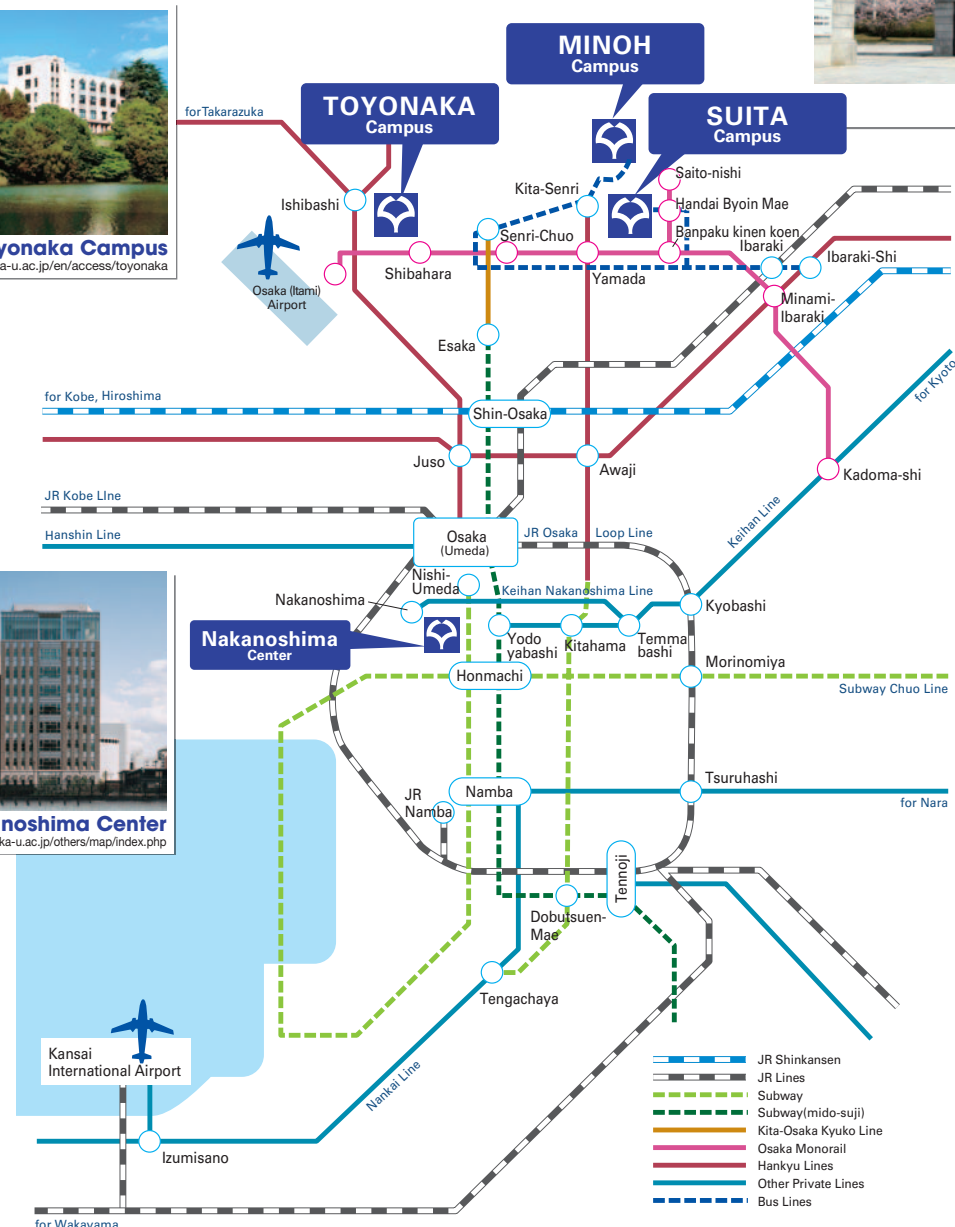
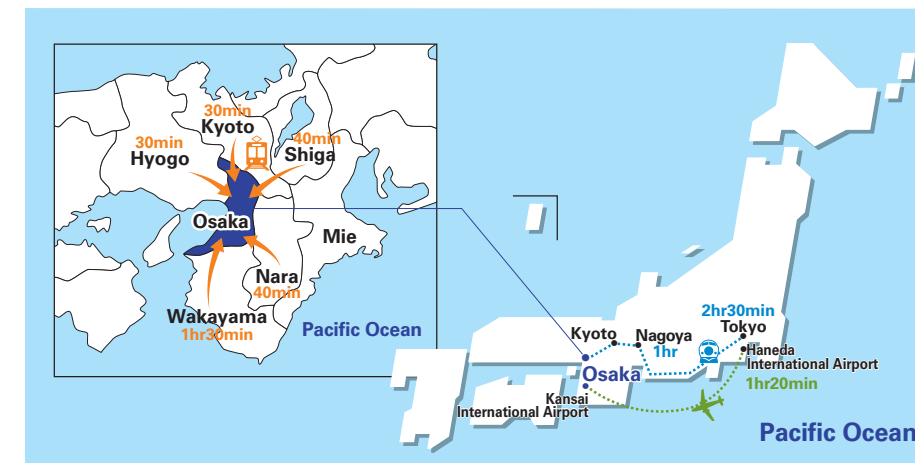
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Campus Locations and Transportation

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