

Program for Leading Graduate Schools



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Message

The Program for Leading Graduate Schools (dc-Leading Program) was launched by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in FY 2011 and its Program Committee, which carries out application screening and program evaluation, was established in FY 2013. Since then, applications have been received for 327 programs, among which a total of 62 have been selected.

The purpose of dc-Leading Program is to foster leaders who can play global roles across the spectrum of the industrial, academic and governmental sectors. It is specifically aimed at developing four kinds of talented people: (1) Those who will be leaders in fields other than research, including industry, public organizations and NPOs, both domestically and internationally; (2) those who, having extensive international and interdisciplinary perspectives, can from a wide overview and take the lead in challenging and solving societal issues; (3) those who, having a solid background of proven research capability, can manage projects that drive innovation; and (4) those who can proactively set goals and achieve them by coordinating and uniting various stakeholders both domestically and internationally.

To monitor how the selected programs are achieving the dc-Leading Program's objectives, follow-up reviews are carried out by members of the Program Committee and program officers.

From FY 2014, mid-term evaluations have been carried out at the 4-year mark of the selected programs. They assess each program's current progress and potential for future advancement. They also identify excellent activities carried out by the programs which, by extension, can be used to provide advice to universities on ways to fully achieve the objectives of the dc-Leading Program. MEXT also uses the evaluation results to consider and make effective allocations of grant funding within the Program. From FY 2017, a final evaluation is made at the 7-year mark of selected programs, posterior to the end of their funding. The results are used to judge whether the programs have achieved the objectives of the dc-Leading Program and to provide appropriate advice to each host university on ways to elevate the standard their degree programs after the funding period ends. The results attained by each program are compiled and released to the public so as to assist and advance the activities of postdocs working in the industrial, academic, governmental and public sectors.

The Program Committee is steadfastly carrying out follow-up reviews while working to support the selected programs. We expect the host universities to build upon the mission of the dc-Leading Program in fostering leaders who will play active international roles and in advancing the reform of their graduate education and doctoral degree programs.



Chair of the Program Committee
Dr. Yuichiro Anzai

Program for Leading Graduate Schools

Purpose and Background of Program

Purpose

Program for Leading Graduate Schools works to advance the establishment of university graduate schools of the highest caliber by supporting the dramatic reform of their education programs in such a way that they will institute degree programs recognized as top quality around the world. To foster excellent students who are both highly creative and internationally attuned and who will play leading roles in the academic, industrial and governmental sectors across the globe, the program brings top-ranking faculty and students together from both in and outside Japan and enlists participation from other sectors in its planning and execution, while creating continuity between master's and doctoral programs and implementing curricula that overarches fields of specialization.

Background

There has of late been an accelerating trend in globalization and information proliferation which, as it sinks roots in society, heralds an era of competition for superlative intelligence, while engendering a societal paradigm driven by S&T advancement. Conversely, the explosive expansion of knowledge is creating an atomization of specialized fields, which makes difficult the defining of values derived from holistic systems of knowledge. Daunting issues threaten the sustainability of human society as it becomes increasingly entangled in a Gordian knot of human, societal and natural complexities. Amidst this milieu, highly capable people who from a high-angle view can transcend the partitioning of specializations have become indispensable to solving societal issues. This has spawned an intensification in competition to secure excellent human resources irrespective of nationality.

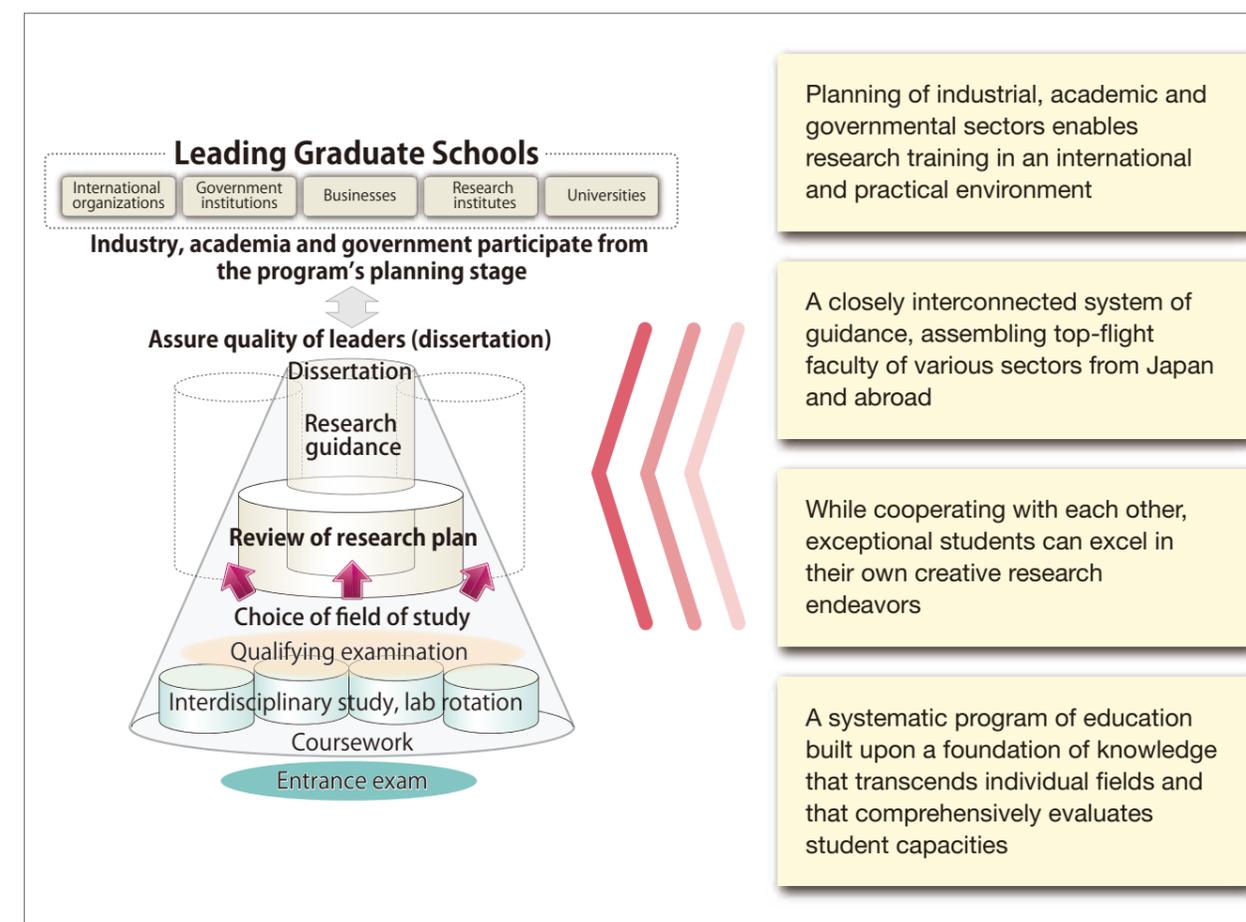
Having achieved rapid economic growth, Japan has to date enjoyed a high level of prosperity. However, Japan is now facing the greatest risk to its sustainability since the post-war period, caused in part by population decline due to a low birth rate and aging society. Exasperating the situation has been the multifaceted damage caused the nation by the Great Eastern Japan Earthquake. To overcome these risks, a societal system needs to be created that can undergird and power the sustainability of Japan as a nation. To perpetuate Japan's trust and persona within the international community, it will also be necessary to foster highly talented people who can capture the essence of things from overarching vantage points—people who will assume the vanguard in overcoming prevailing risks and issues, while exercise leadership in advancing the sustainable development and growth of human society as a whole.

What is a “degree program”?

It is a combination of the following four elements:

- 1) A clear articulation of how students will be fostered in a doctoral course
- 2) The creation of a system for guiding education and research by faculty whose duties transcend departmental frameworks
- 3) Based on close cooperation among faculty members, the creation of concrete system for students to acquire needed knowledge and abilities
- 4) Via a continuity of educational curricula, students who chose the doctoral course will be able to acquire needed knowledge and abilities, and the conferral of the degree will stand as proof that they have done so

Program Schematic



Outline of Program

Outline

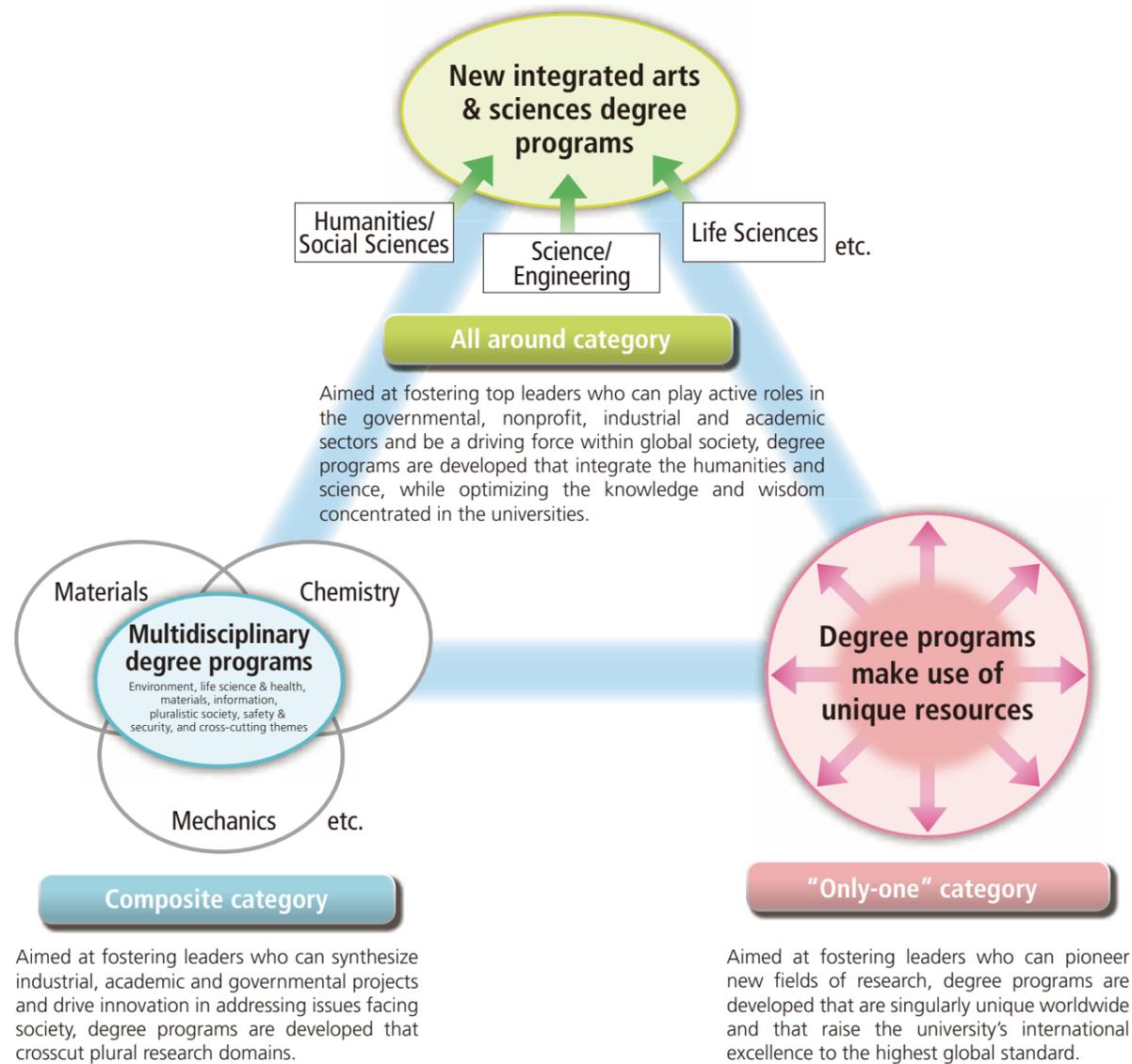
- (1) Budget (in billion yen)
FY2011: 3.9, FY2012: 11.6, FY2013: 17.8, FY2014: 18.5, FY2015: 17.8, FY2016: 17.0, FY2017: 15.0, FY2018: 7.1, FY2019: 2.9
- (2) Institutions supported:
National, public and private universities with established doctoral programs
- (3) Categories of support
There are three categories; All-around, Composite and “Only-one” categories, defined by the types of leaders to be fostered and issues to be addressed. (See definitions below)
- (4) Funding period: Up to 7 years
- (5) Follow-up and Evaluation
 - Follow-up: While ascertaining the state of program progress, guidance and advice is provided where deemed necessary.
 - Evaluation: An interim evaluation is performed in the fourth year of each program, and a final evaluation is conducted in their seventh year (last year).

Types of leaders fostered

This Program aims to foster talented people who will play leading roles in the industrial, academic and governmental sectors across the world. The following three capabilities are considered needed to become such a global leader:

- 1) Ability to collaborate with others while possessing a solid set of value, and to act globally with firm resolve
- 2) Ability to identify issues and independently challenge them by developing hypotheses and applying knowledge in testing them
- 3) Ability to ascertain the essence of matters by applying a wide range of knowledge buoyed by high levels of specialization and international perspective

Three categories supported

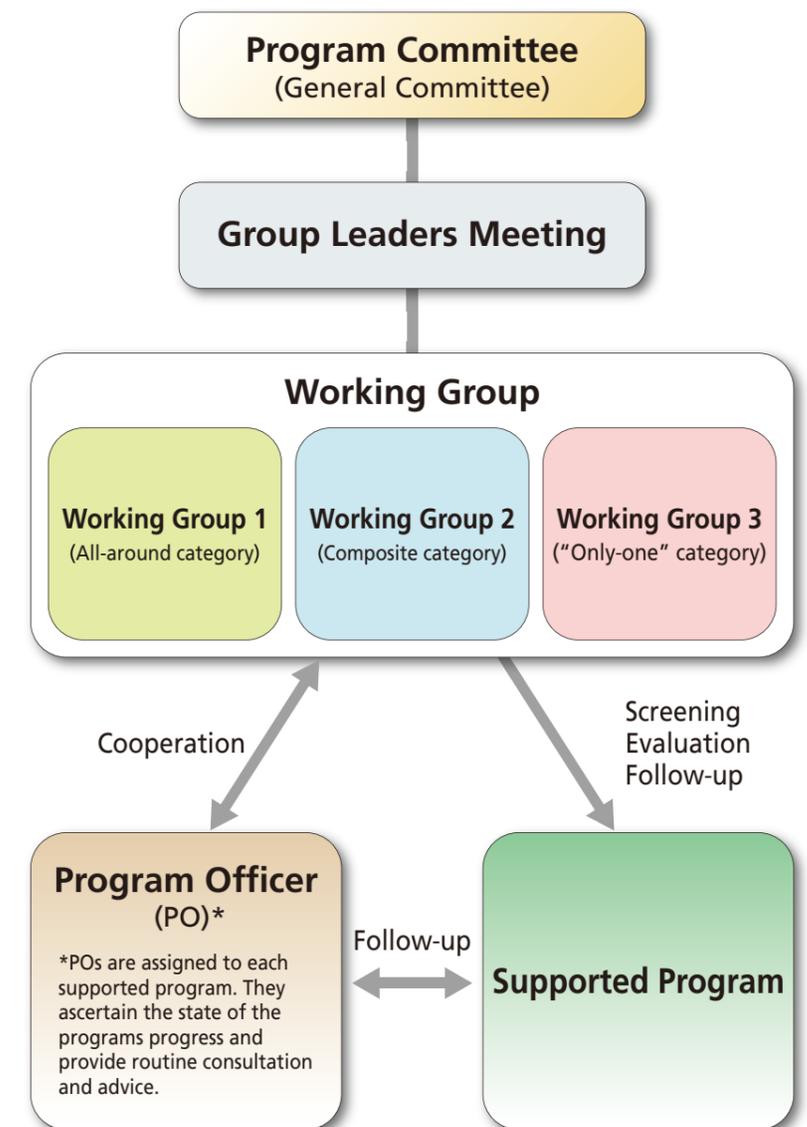


Number of Selections

Category / Theme	FY2011	FY2012	FY2013	Total
1. All-around Category	3	2	2	7
2. Composite Category				
Environment	4	2		6
Life Science & Health	4	2		6
Materials		3	3	6
Information		3	4	7
Pluralistic Society		3	3	6
Safety & Security	1	2		3
Cross-cutting Themes	2	2	2	6
3. "Only-one" Category	6	5	4	15
Total	20	24	18	62

About Program Committee for Leading Graduate Schools

A Program Committee is established to carry out application screening and program evaluation within the Program for Leading Graduate Schools. The Committee also performs follow-up reviews on the selected programs. Under the Program Committee are placed working groups that performs screening and evaluation in their respective program category. A committee of working group chairs carries out overall program coordination. The three program categories are "All around category," "Only-one" category," and "Composite category" (including fields of the environment, life science and health, materials, information, pluralistic society, safety and security, and related domains that crosscut these fields).





List of Supported Programs

Period (FY)	Code	Program Title	University (Joint-implementing universities)	Program coordinator	Page
All-around category					
2011-2017	A01	Graduate School of Advanced Leadership Studies, Kyoto University	Kyoto University	Syuichi KAWAI	8
	A02	Cross-Boundary Innovation Program	Osaka University	Kikuo FUJITA	9
	A03	Science for Development of Super Mature Society	Keio University	Fumihiko KANNARI	10
2012-2018	G01	Academy for Global Leadership (AGL)	Tokyo Institute of Technology	Satoshi NAKAMURA	11
	G02	PhD Professional: Gateway to Success in Frontier Asia	Nagoya University	Naoshi SUGIYAMA	12
2013-2019	P01	Global Leader Program for Social Design and Management (GSDM)	The University of Tokyo	Hideaki SHIROYAMA	13
	P02	Graduate Education and Research Training Program in Decision Science for a Sustainable Society	Kyushu University	Tetsukazu YAHARA	14
Composite category - Environment					
2011-2017	B01	Graduate Program in Sustainability Science: Global Leadership Initiative (GPSS-GLI)	The University of Tokyo	Takashi MINO	15
	B02	Academy for Co-creative Education of Environment and Energy Science (ACEEES)	Tokyo Institute of Technology	Mutsuko HATANO	16
	B03	Integrative Graduate Education and Research Program in Green Natural Sciences	Nagoya University	Kunio AWAGA	17
	B04	Global Environmental System Leaders Program	Keio University	Yasushi KIYOKI	18
2012-2018	H01	Creation of the Practical Science Leading Graduate School for Green and Clean Food Production	Tokyo University of Agriculture and Technology	Tsutomu ARIE	19
	H02	Advanced Graduate Program in Global Strategy for Green Asia	Kyushu University	Jun TANIMOTO	20
Composite category - Life Science & Health					
2011-2017	C01	Ph.D. Program in Human Biology	University of Tsukuba	Akira SHIBUYA	21
	C02	Graduate Program for Leaders in Life Innovation (GPLLI)	The University of Tokyo	Takeishi IWATSUBO	22
	C03	Education Academy of Computational Life Sciences (ACLS)	Tokyo Institute of Technology	Yutaka AKIYAMA	23
	C04	Interdisciplinary Program for Biomedical Sciences (IPBS)	Osaka University	Kiyoshi TAKEDA	24
2012-2018	I01	Training Program of Leaders for Integrated Medical System for Fruitful Healthy-Longevity Society	Kyoto University	Hide nao FUKUYAMA	25
	I02	HIGO (Health life science: Interdisciplinary and Glocal Oriented) Program	Kumamoto University	Teru OGURA	26
Composite category - Materials					
2012-2018	J01	Materials Education program for the future leaders in Research, Industry and Technology (MERIT)	The University of Tokyo	Masashi KAWASAKI	27
	J02	Interactive Materials Science Cadet Program (IMSC)	Osaka University	Masaaki ASHIDA	28
	J03	Development of Global Research Leaders in Molecular Systems for Devices and Establishment of an International Education and Research Center	Kyushu University	Chihaya ADACHI	29
2013-2019	Q01	Ambitious Leader's Program Fostering Future Leaders to Open New Frontiers in Materials Science	Hokkaido University	Kouichiro ISHIMORI	30
	Q02	Interdepartmental Doctoral Degree Program for Multi-dimensional Materials Science Leaders	Tohoku University	Tetsuya NAGASAKA	31
	Q03	Graduate Course for System Inspired Leaders in Material Science (SiMS)	Osaka Prefecture University (Osaka City University)	Norifumi FUJIMURA	32
Composite category - Information					
2012-2018	K01	Graduate Program for Social ICT Global Creative Leaders (GCL)	The University of Tokyo	Yasuo KUNIIYOSHI	33
	K02	Collaborative Graduate Program in Design	Kyoto University	Toru ISHIDA	34
	K03	Humanware Innovation Program	Osaka University	Hiroshi SHIMIZU	35
2013-2019	R01	Ph.D. Program in Empowerment Informatics	University of Tsukuba	Hiroo IWATA	36
	R02	Graduate Program for Real-world Data Circulation Leaders	Nagoya University	Kazuya TAKEDA	37
	R03	Innovative program for training brain-science-information-architects by analysis of massive quantities of highly technical information about the brain	Toyohashi University of Technology	Shigeki NAKAUCHI	38
	R04	Graduate Program for Embodiment Informatics	Waseda University	Shigeki SUGANO	39

Period (FY)	Code	Program Title	University (Joint-implementing universities)	Program coordinator	Page
Composite category - Pluralistic Society					
2012-2018	L01	Graduate Program in Cultural Resource Management	Kanazawa University	Haruya KAGAMI	40
	L02	Doctoral Program for Multicultural Innovation	Osaka University	Kokichi SHIMIZU	41
	L03	Global Resource Management	Doshisha University	Masanori NAITOU	42
2013-2019	S01	Integrated Human Sciences Program for Cultural Diversity (IHS)	The University of Tokyo	Takumi MORIYAMA	43
	S02	Women Leaders Program to Promote Well-being in Asia	Nagoya University	Hiroko TSUKAMURA	44
	S03	Taoyaka Program for creating a flexible, enduring, peaceful society	Hiroshima University	Akimasa FUJIWARA	45
Composite category - Safety & Security					
2011-2017	D01	Inter-Graduate School Program for Sustainable Development and Survivable Societies	Kyoto University	Kaoru TAKARA	46
2012-2018	M01	Inter-Graduate School Doctoral Degree Program on Science for Global Safety	Tohoku University	Hiroo YUGAMI	47
	M02	Disaster Nursing Global Leader Degree Program	University of Kochi (University of Hyogo, Tokyo Medical and Dental University, Chiba University, Japanese Red Cross College of Nursing)	Satoru YAMADA	48
Composite category - Cross-cutting Themes					
2011-2017	E01	Advanced Leading Graduate Course for Photon Science (ALPS)	The University of Tokyo	Hiroaki AHARA	49
	E02	Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster	Hiroshima University	Masao KOBAYASHI	50
2012-2018	N01	Leadership Development Program for Space Exploration and Research	Nagoya University	Hiroyasu TAJIMA	51
	N02	Leading Graduate Program in Science and Engineering	Waseda University	Toru ASAHI	52
2013-2019	T01	Graduate Program in Gerontology : Global Leadership initiative for an Age-Friendly Society (GLAFS)	The University of Tokyo	Noboru HARATA	53
	T02	Fostering Long-Term Creativity and Innovation with Science and Technology Disciplines Based on Ochanomizu Spirit "Migakazuba" in the Next Generation of Global Leaders	Ochanomizu University	Hazuki FURUKAWA	54
"Only-one" category					
2011-2017	F01	Fostering Global Leaders in Veterinary Science toward Contributing to "One Health"	Hokkaido University	Motohiro HORIUCHI	55
	F02	Program for Cultivating Global Leaders in Heavy Ion Therapeutics and Engineering	Gunma University	Takashi NAKANO	56
	F03	Global Human Resource Development Program for Nuclear Safety and Security (J-ATOM)	Tokyo Institute of Technology	Masaki SAITO	57
	F04	Green Energy Conversion Science and Technology	University of Yamanashi	Hiroyuki UCHIDA	58
	F05	The Program for Cross-Border Legal Institution Design	Nagoya University	Yoshiharu MATSUURA	59
	F06	Next generation picobiology pioneered by photon sciences	University of Hyogo	Takashi OOSUMI	60
2012-2018	O01	New Frontier Leader Program for Rare-metals and Resources	Akita University	Atsushi SHIBAYAMA	61
	O02	Innovative Flex Course for Frontier Organic Material Systems (iFront)	Yamagata University	Hiroshi IIZUKA	62
	O03	Nurture of Creative Research Leaders in Immune System Regulation and Innovative Therapeutics	Chiba University	Tetsuichiro SAITO	63
	O04	Leading Graduate Course for Frontiers of Mathematical Sciences and Physics (FMSP)	The University of Tokyo	Yoshikazu GIGA	64
	O05	Program for Nurturing Global Leaders in Tropical and Emerging Communicable Diseases	Nagasaki University	Kouichi MORITA	65
2013-2019	U01	Advanced Program for Global Leaders in the Changing World	National Graduate Institute for Policy Studies	Yoko KIJIMA	66
	U02	Global Leader Program for Fiber Renaissance	Shinshu University	Masayuki TAKATERA	67
	U03	Leading graduate program for reducing the burden of non-communicable disease (NCD) in the Asian Pacific region	Shiga University of Medical Science	Katsuyuki MIURA	68
	U04	Leading Graduate Program in Primatology and Wildlife Science	Kyoto University	Tetsuro MATSUZAWA	69

* The names of program coordinators at the time these programs ended being supported.

Kyoto University

Graduate School of Advanced Leadership Studies, Kyoto University



This program's goal is to foster global leaders with a sense of duty, ethics, and responsibility who can withstand pressure from all sides and have the flexibility to combine broad knowledge with deep specialization to attain mastery of their current specialization and other subjects. In addition, through rich practical instruction both domestically and abroad, students will learn how to make judgments and take decisive action out in the field.

[Contents of Diploma]

Degrees conferred: PhD degrees in Philosophy.

*The graduates who had entered Kyoto University in 2012 have got the doctoral degree which shows that they have completed "Shishukan program".

Producing leaders who will lead society into the future

This program's goal is to foster global leaders with a sense of duty, ethics, and responsibility who can withstand pressure from all sides and have the flexibility to combine broad knowledge with deep specialization to attain mastery of their current specialization and other subjects. In addition, through rich practical instruction both domestically and abroad, students will learn how to make judgments and take decisive action out in the field. Those students who have finished this program are already working with international institutions including the U.N., government agencies, and companies for a truly global experience.

Those students in their final year of the program have informal assigned positions in a wide variety of fields such as starting new business, works at international organizations, and engagement in postdoctoral studies, fulfilling the program's mission to cultivate global leaders.

Encouraging both creative thought and practical skills

Learning through service in Japan and abroad

We need leaders who can understand different environments and different people and work to improve their lives. "Service learning" promotes this mission by helping students to cultivate a sense of community and international understanding. In Japan, students can participate in volunteer activities at nursing and care



Internship in Bangladesh: Learning about different cultures and customs through volunteer work

facilities and other institutions through the cooperation of local governments. Overseas, they can join international efforts through organizations such as JICA.

Deep discussions

By inviting specially-appointed professors active around the world in industry, government, finance, and international organizations, students can engage in debates on issues raised in lectures and learn more deeply about issues, cultivating their sense of duty as leaders and making them more flexible individuals with the skills essential for success.

International training for success

In order to gain the knowledge and experience necessary to succeed in the real world, students engage in international training and education in their fourth year based on their area of research and their future goals. Students can choose from among organizations such as OECD, FAO, and other international institutions based on their specialty and desired pursuits. In addition to changing how they think of themselves in relation to the world, this experience will help students nurture the awareness, responsibility, and ability to get things done required of international leaders.

Project-based learning

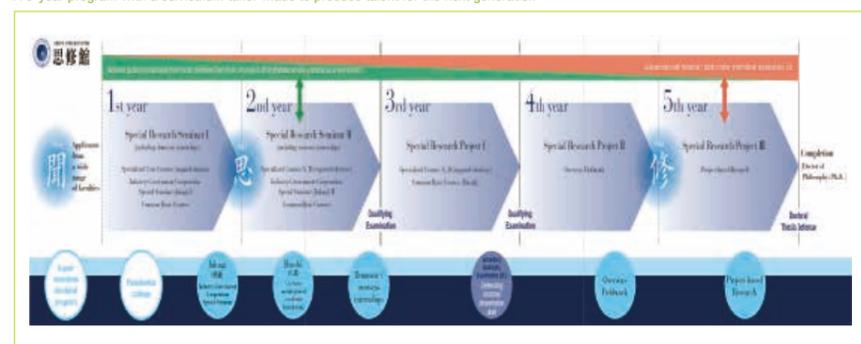
In their fifth year, students will gain practical experience at domestic companies and government agencies, and as the culmination of their studies, they will also



Deep discussions: Students exchange opinions with leaders active domestically and globally

plan and implement an original project that addresses a societal issue of their own choosing. This will involve assuming a leadership role and working together with their collaborators to calculate a budget, estimate staff requirements, make logistical arrangements, and handle legal and financial considerations. The program's instructor staff and various mentors will help to ensure that each student is able to successfully get their project off the ground. Students can procure funding through the program's own fund-raising initiatives, and they can also apply to various foundations and attain corporate sponsors. The project planners themselves assume full control of their funding scheme.

A 5-year program with a curriculum tailor-made to produce talent for the next generation



With a focus on wisdom gained through both education and experience, students gain the practical skills and ambition they need to succeed globally

DATA (FY2017)

[Number of students recruited] 20 a year
[Percentage of overseas students and mid-career students (shakajin)] 20% - 0%
[Matriculated graduate schools, departments, etc.] There are 14 graduate schools, 3 research institutes, and 2 centers. It is also acceptable to enter the graduate schools which is not the program professors' s major.
Graduate School of Advanced Integrated Studies in Human Survivability, Graduate School of Letters (Division of History), Graduate School of Education (Division of Educational Studies), Graduate School of Law, Graduate School of Economics (Economics), Graduate School of Science (Mathematics), Graduate School of Medicine (Graduate course, Medicine and Medical Science, School of Public Health), Graduate School of Pharmaceutical Sciences (Division of Pharmaceutical Sciences), Graduate School of Engineering (Division of Civil and

Earth Resources Engineering Division of Chemical Engineering Division of Polymer Chemistry), Graduate School of Agriculture (Division of Applied Life Sciences, Division of Environmental Science and Technology), Graduate School of Informatics (Department of Intelligence Science and Technology, Department of Applied Mathematics and Physics), Graduate School of Biostudies (Division of Systemic Life Science), Graduate School of Global Environmental Studies, Graduate School of Management, Institute for Chemical Research, Institute of Advanced Energy, Institute of Economic Research, Kokoro Research Center, Center for the Promotion of Interdisciplinary Education and Research
[New graduate schools and departments (etc.) established for the program] Graduate School of Advanced Integrated Studies in Human Survivability was newly established in FY 2013.

[Collaborating universities in Japan and overseas] 5 universities University of Regina / University of Hannover / Yezin Agricultural University / Macquarie University / Goldsmiths, University of London
[Collaborating organizations] 11 companies, 1 public research institute, 7 international organizations WCA / GLOBAL CCS INSTITUTE / BroadBand Tower, Inc. / Kawasaki Heavy Industries, Ltd. / Kansai Electric Power Co., Inc. / Sumitomo Electric Industries, Ltd. / DMG MORI Co., Ltd. / Osaka Gas Co., Ltd. / THE KYOTO SHIKIN BANK / HORBIA, Ltd. / CMC GROUP / JICA / OECD / FAO / UNESCO / UNEP / ITER / UNDP / UNFPA

[Number of program graduates (including anticipated number)] 3 (FY 2016), 12 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 2 to universities, 1 to private company, 1 to governmental agency, 1 to start-up business, 1 to other

Inquiries: 075-762-2010 Website: <http://www.gsais.kyoto-u.ac.jp>

Osaka University

Cross-Boundary Innovation Program

OSAKA UNIVERSITY
CROSS-BOUNDARY INNOVATION PROGRAM



In order to meet the challenges posed by complex issues that span multiple disciplines, this program aims to cultivate individuals with advanced expertise and flexibility who have the potential to bring about true innovation that revolutionizes social systems and achieves the type of "cross-boundary innovation" that can only be realized by overcoming adversity.

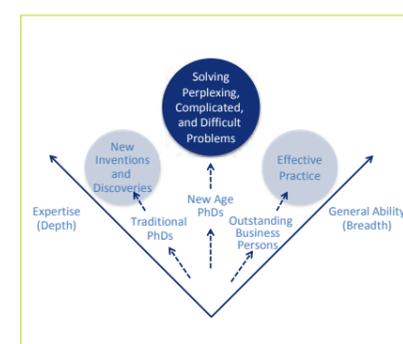
[Contents of Diploma]

Completion of "Cross-Boundary Innovation Program" is noted on doctoral diplomas.

A unique course of study

Today's world is characterized by intellectual competition, making the development of science and technology key to spurring progress in society. However, this explosive expansion of knowledge has resulted in a high level of segmentation among specialties, which creates a paradox considering that many real problems require expertise across several specialties. Thus, in order to address these complex issues, it has become essential to possess not only advanced specialist expertise, but also a broad base of knowledge that synthesizes information from other fields and applies it in a creative fashion.

With this mission in mind, the Cross Boundary Innovation Program aims to cultivate individuals with advanced expertise and creativity who have the potential to bring about true innovation that revolutionizes social systems and achieves the type of "cross-boundary innovation" that can only be realized by overcoming adversity. This requires them to possess expertise across several areas and transcend boundaries not only in terms of specialty, but also in terms of nationality, preconceived notions, and markets, cultivating a broad-mindedness and tolerance that sets the stage for creativity and bold revolutionary thinking. It is this new generation of cross-boundary experts who will forge ahead into unknown territory and work to resolve the complicated issues of the day.



A new generation of leaders with both expertise and a broad skill set

To cultivate students' ability to transcend boundaries and usher in innovation

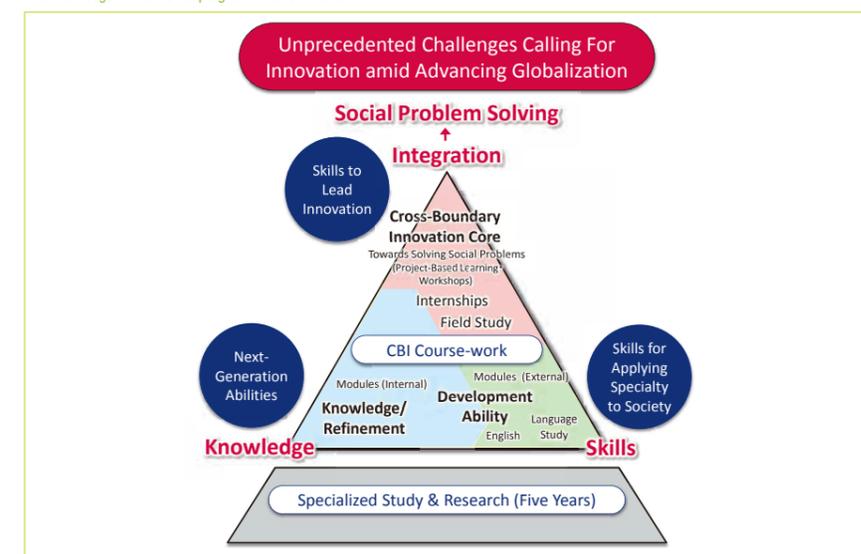
The Cross-Boundary Innovation Program brings together graduate students from several of Osaka University's graduate programs who exhibit drive and unlimited potential. Students continue to hone their skills in their main specialty while also engaging in the interdisciplinary, participation-focused course of study that is this program's specialty. This unique course of study is designed around individual course work focusing on cultivating three areas essential to bringing about innovation: knowledge, skills, and integration. Students will enhance their interdisciplinary mastery by engaging in classes, projects, PBL, overseas training, and more, integrating a multitude of complementary educational experiences into a coherent whole.

In addition to the first-rate professors in each field of the university, the program utilizes partnerships with top companies to bring in businesspeople to enhance the educational experience, as well as Olympic medalists and a number of other talented individuals.



Project-based learning that encourages students to tackle new issues

The knowledge and skills the program aims to nurture



Knowledge, skills, integration: the three key groups of courses for solving the issues facing society

DATA (FY2017)

[Number of students recruited] 20 a year
[Percentage of overseas students and mid-career students (shakajin)] 11% - 9%
[Matriculated graduate schools, departments, etc.] 14 graduate schools, 43 departments (Graduate School of Letters) Studies on Cultural Forms, Studies on Cultural Expressions (Graduate School of Human Sciences) Human Sciences (Graduate School of Law and Politics) Law and Political Science (Graduate School of Economics) Economics, Business and Management (Graduate School of Science) Mathematics, Physics, Chemistry, Biological Sciences, Macromolecular Science, Earth and Space Science (Graduate School of Medicine) Medicine, Health Sciences (Graduate School of Dentistry) Interdisciplinary Dentistry (Graduate School of Pharmaceutical

Sciences) Advanced Pharmaco-science, Medical Pharmacy (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 (Graduate School of Engineering Science) 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

[Number of program graduates (including anticipated number)] 5 (FY 2016), 9 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 3 to universities, 9 to private companies, 1 to public research institute, 1 to governmental agency

Inquiries: 06-6879-4908 Website: <http://www.cbi.osaka-u.ac.jp/>

Keio University

Science for Development of Super Mature Society



This program aims to produce a next-generation of highly qualified doctoral students, selected from 13 graduate schools covering the fields of humanities, sciences, and medicine, and cultivates them by a full-scale environment of integrated framework of arts and sciences and by an advanced educational environment based on partnerships with industry and government in addition to their first majors.

[Contents of Diploma]

Completion of "Program for Leading Graduate School (Science for Development of Super Mature Society)" is noted on doctoral diplomas.

Producing highly trained experts ready to lead development of super mature society

Japan is rapidly aging in the world and our society has matured. This super mature society requires 1) establishing a new societal framework, 2) developing new industries, 3) creating a sustainable development scenario of society while leading international communities. This requires leaders who possess the solid expertise and broad outlook necessary to make these ideas a reality.

This program aims to produce a next-generation of highly qualified doctoral students, selected from 13 graduate schools covering the fields of humanities, sciences, and medicine, and cultivates them by a full-scale environment of integrated framework of arts and sciences and by an advanced educational environment based on partnerships with industry and government in addition to their first majors.

Cultivating a next-generation doctoral students by integrated framework of arts and sciences and industry-academia partnerships

In order for students to obtain sufficient interdisciplinary training in arts and sciences, students will obtain three degrees over the course of the five-year program: a Master's in their first major, a Master's in their second



Bringing together students from 10 graduate schools to engage in group work (Winter Camp)

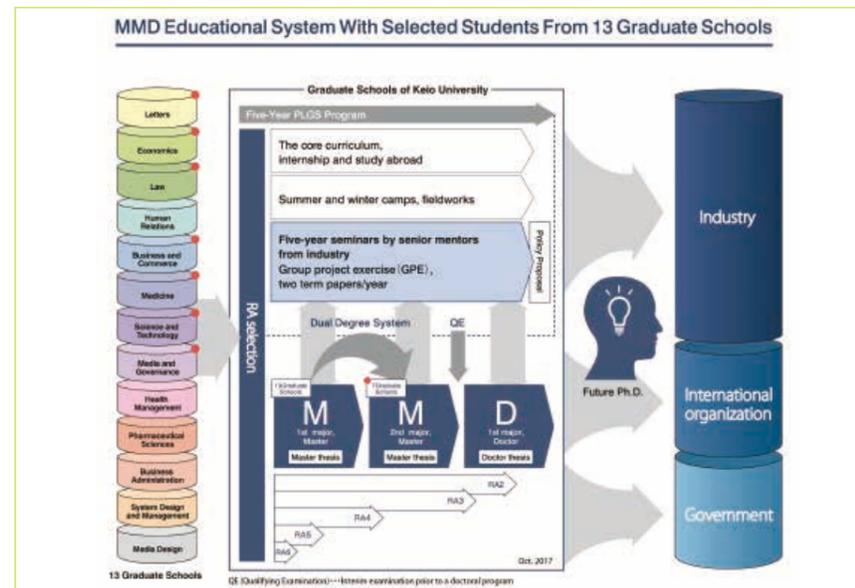
major, and a Ph.D. in their first major (the MMD system). They will engage in both the humanities and the sciences, using the wide base of knowledge they gain from obtaining their two Master degrees to work toward their Ph.D. During the Ph.D. portion of the program, students will utilize the deep insight and broad perspective they have gained to dive into their research and produce a creative solution to the issues they investigate.

In addition, during the first year of their first major's Master program, students will experience a five-week internship abroad, and during the first year of their Ph.D., they will spend a half year abroad at some of America's finest universities (Harvard University, Stanford University, California Institute of Technology, and others). This will further enhance their expertise as well as increase their global outlook while growing their international network. Another of this program's unique initiatives involves inviting 10 or so executives and leaders from companies and a



Presentations on results of group project exercise at a public policy proposal hearing at MEXT

local government to weekly provide students with their perspectives from the business world and other parts of the society, deepening their ability to identify and solve problems. In the fifth year, this culminates in students publishing policy proposals and long-term industry strategy proposals.



Cultivating new doctoral students with two Master degrees (arts and science) and a Ph.D. who are ready to join firms, international institutions, national and local government bodies, and other organizations

Inquiries: 045-566-1446 Website: <http://plgs.keio.ac.jp/?lang=en>

DATA (FY2017)

[Number of students recruited] 20 a year
[Percentage of overseas students and mid-career students (shakajijin)] 5% - 8%
[Matriculated graduate schools, departments, etc.] 7 graduate schools, 19 majors
(Graduate School of Science and Technology) School of Fundamental Science and Technology, Integrated Design Engineering, Science for Open and Environmental Systems
(Graduate School of Medicine) Major in Medical Sciences
(Graduate School of Media and Governance) Major in Media and Governance
(Graduate School of Economics) Major in Economics
(Graduate School of Business and Commerce) Major in Commerce
(Graduate School of Letters) Major in Philosophy and Ethics, Aesthetics and Science of Arts, History, Japanese Literature, Chinese Literature, English and

American Literature, German Literature, French Literature, Library and Information Science
(Graduate School of Law) Major in Civil Law, Public Law, Political Science
[Collaborating universities in Japan and overseas] 24 universities
Ecole Centrale de Nantes / KTH Royal Institute of Technology / Delft University of Technology / University of Freiburg / University of Padova / Politecnico di Milano / King's College London / American University / California Institute of Technology / University of California, Davis/Berkeley / Stanford University / The University of Tennessee / Northwestern University / Harvard University / Purdue University / University of Hawaii / University of Michigan / The University of Utah / Rutgers University / Federation University Australia / Monash University / Princeton University / Aoyama Gakuin University / Senshu University

[Collaborating organizations] 17 companies, 3 public research institutes, 2 local public bodies
JTB Tourism Research & Consulting Co. / NTT Group / Truth, Human, Science & Management Organization Laboratory LLC / Kyowa Exeo Corporation / Nippon Steel & Sumitomo Metal Corporation / Sony Corporation / Takahashi Yuichiro Law Office / Tokio Marine Group / Toshiba Research Consulting Corp. / IBM Japan, Ltd. / Hitachi, Ltd. / Fuji Xerox Co., Ltd. / Marubeni Corporation / BMW of San Francisco / Breathe California of the Bay Area / Oakland Digital / Tokyo Electron America / Memorial Sloan Kettering Cancer Center / Institut de Recherche et de Coordination Acoustique/Musique / Leibniz Institute for Crystal Growth (IKZ) / Kawasaki City / Shibuya City Office

[Number of program graduates (including anticipated number)] 5 (FY 2016), 13 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 13 to private companies, 1 to public research institute, 3 to governmental agencies, 1 to medical doctor

Tokyo Institute of Technology



Academy for Global Leadership (AGL)

Training PhD global leaders who, based on their deep specialist knowledge in their individual fields of specialization, possess "cross-cultural understanding and global capabilities", "knowledge about management of technology", "communication skills", "comprehensive perspectives and the ability to take action", and who have the qualities that will enable them to transcend interdisciplinary barriers and succeed in the world in industry, government, and academia.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Science, Engineering, Philosophy, or Management of Technology. Completion of "Academy for Global Leadership" is noted on the diploma.

The Aims of the Academy of Global Leadership

In the current age of globalization of science, technology and the world economy, leaders of the global community will require not only a high degree of specialist expertise, but also the ability to show understanding of the views of people of different cultural and social backgrounds as well as lead society without being confined to established frameworks such as nations and organizations. In the Academy for Global Leadership (AGL), through a partnership with Hitotsubashi University, Tokyo Institute of Technology combines the development of a high degree of specialist expertise in the science and engineering sector which it is well known with Hitotsubashi's strengths in the areas of political science, economics, and social sciences, to achieve a "harmony of the humanities and sciences." Through this harmony, the AGL develops in its students the qualities needed to apply their extensive specialist knowledge in their own fields to contribute to the development of other areas of science and engineering, the ability to apply a panoramic perspective across multiple disciplines, international abilities, communication skills and the ability to take action, and knowledge of technology management. In doing so, the Academy is committed to producing global talent of the 21st century that can be expected to succeed in a wide range of sectors, including the global corporations and international organizations, or succeed as policy leaders.

Three Key Features of AGL's Programs

Firstly, AGL is "a degree program that trains global leaders", by bringing together the resources of the entire Tokyo



Dojo Program, a training space for students

Institute of Technology. The most striking feature of AGL is the atmosphere in which ambitious students from all of Tokyo Tech's graduate schools come together and, joined by students from graduate schools at our partner university Hitotsubashi University, engage in friendly competition while making use of their respective specializations. The graduates from partner university also receive the certificate of AGL educational completion.

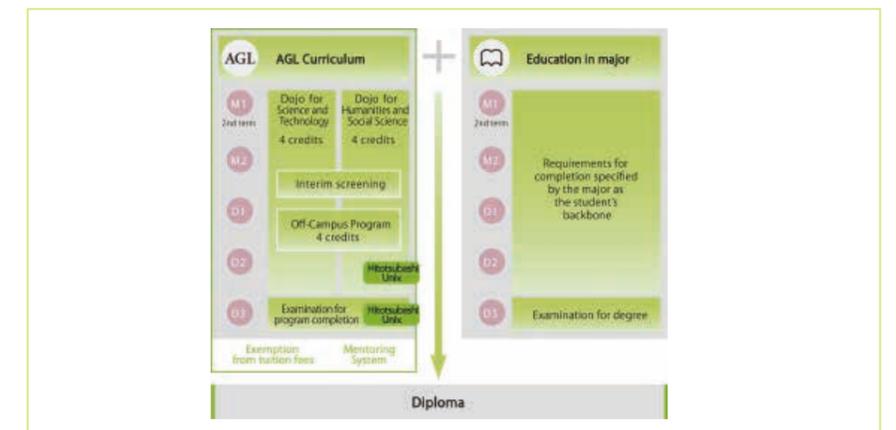
The second feature is its "AGL Dojo Programs", in which the students hone themselves by encouraging each other and competing with each other. There are two Dojos – the Dojo for Science and Technology and the Dojo for Humanities and Social Science. acilitated by a Dojo Master, the students address problems posed by people who are at the forefront of their fields in the world, using their own fields to participate in debates and work in groups to explore solutions to those problems. Through this process, they gain an understanding of other fields, while acquiring dialogue and consensus-building skills for adapting to all manner of situations, and refine the overall personal and interpersonal abilities and skills that will turn them into strong leaders.

The third feature is "the off-campus program". Professionals who will propel the international community forward cannot be frogs in a well. To test the qualities



In the off-campus program students test the qualities they have acquired at AGL in the real world—American biomass startup project

and leadership abilities they have nurtured in the Dojo, the students are placed with corporations and research institutions in Japan and overseas for at least three months, where they are given the opportunity to build up practical experience in real world situations. Furthermore, at all stages, which include curriculum design and implementation, the Dojo Program, off-campus program, graduation examination, and graduate intakes, AGL is strengthening its partnerships with industry and government through the Tokyo Tech Industry-Government-Academia Human Resources Development Consortium. In this way, it provides an extensive system of career support for graduates so they may become true global leaders.



Students undertake the AGL curriculum, consisting of the Dojo program and off-campus program, concurrently with their specialized education in their majors.

DATA (FY2018)

[Number of students recruited] 10 a year (FY 2011-2012), 15 a year (FY 2013-2018)
[Percentage of overseas students and mid-career students (shakajijin)] 17% - 15%
[Matriculated graduate schools, departments, etc.] 6 schools, 25 graduate majors and 1 professional master's degree program
(School of Science) Mathematics; Physics; Chemistry; Energy Science and Engineering; Earth and Planetary Sciences
(School of Engineering) Mechanical Engineering; Nuclear Engineering; Engineering Sciences and Design; Human Centered Science and Biomedical Engineering; Energy Science and Engineering;

Systems and Control Engineering; Electrical and Electronic Engineering; Information and Communications Engineering; Industrial Engineering and Economics
(School of Materials and Chemical Technology) Materials Science and Engineering; Nuclear Engineering; Human Centered Science and Biomedical Engineering; Energy Science and Engineering; Chemical Science and Engineering
(School of Computing) Mathematical and Computing Science; Artificial Intelligence; Computer Science
(School of Life Science and Technology) Life Science and Technology; Human Centered Science and Biomedical Engineering
(School of Environment and Society) Architecture and Building

[Number of program graduates (including anticipated number)] 1 (FY 2014), 3 (FY 2015), 3 (FY 2016), 5 (FY 2017), 4 (FY 2018)
[Main destinations of program graduates (including anticipated destinations)] 2 to universities, 10 to private companies, 2 to public research institutes, 1 to start-up business, 1 to other

Inquiries: 03-5734-3116 Website: <http://www.agl.titech.ac.jp/>

Engineering; Urban Design and Built Environment; Engineering Sciences and Design; Civil Engineering; Global Engineering for Development, Environment and Society; Nuclear Engineering; Energy Science and Engineering; Social and Human Sciences; Innovation Science; Technology and Innovation Management
[Collaborating universities in Japan and overseas] 1 university Hitotsubashi University

Kyushu University

Graduate Education and Research Training Program in Decision Science for a Sustainable Society



This program cultivates global leaders who have outstanding disciplinary knowledge in their major fields, multidisciplinary knowledge based on experience in solving social problems in the field, and transdisciplinary knowledge about human decision-making and behavior. It also trains students for skills of globalized activities, presentation, proposal, and leadership for organizing and pursuing collaborative tasks for the solution of challenges.

[Contents of Diploma]

Completion of "Advanced Graduate Program on DECISION SCIENCE for a sustainable society" is noted on doctoral diplomas.

Global leaders leading the times

The human being currently faces a major problem in finding a balance between the global environment and the sustainability of civil society. We have to make decisions about various problems, such as climate change, globalization, and rapid population growth or decline. The Graduate Education and Research Training Program in Decision Science for a Sustainable Society cultivates global leaders who are able to spearhead initiatives to solve these problems. To achieve this, the program consists of education and research modules concerning five important issues – environment, disasters, health, governance, and humanity. In collaboration with corporations, governments, citizens, and international organizations, it guides students with a global education and research mentoring system that transcends disciplinary boundaries. Students build up field experience in Japan and overseas on critical issues such as sustainable forest use in Cambodia, international disaster surveys, health management in Bangladesh, and local government governance. As they do so, they learn the science of problem-solving in a practical way.

To provide students opportunities to participate in international projects and plans, the program has partnered with organizations such as Future Earth, the international science program that aims to solve global-scale problems by building globally sustainable science through collaboration between the natural sciences and the social sciences. While experiencing a turning point of science under the development of transdisciplinary sustainability science, students will acquire a contemporary



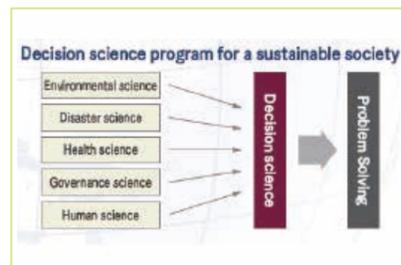
Group discussion on the topic of "What is science?"

global perspective.

By being a grade group leader, a module leader, or a leader in organizational training workshop, students develop leadership skills through the experience of leading teams.

Establishment of decision science

To connect outcomes of disciplinary sciences with solving social problems, a new transdisciplinary science, called "decision science" has been established. Decision science concerns methodologies for making the best decisions in the face of a variety of uncertainties while considering diverse values, and leading those decisions to success. It consists of the holistic and integrative understanding of complex and uncertain phenomena, the structured understanding of irrational human behavior and psychology, and a systematic understanding of the various challenges faced by the global environment and human



Establishment of decision science

society. Through the establishment of decision science, the program cultivates people who are able to deepen their understanding of the problem-solving process, composed of innovative design, decision, execution and adaptive learning, and who can contribute to problem-solving based on rational thinking.

Program conceptual diagram



Conceptual diagram of the program that imparts the three types of academic knowledge (disciplinary, interdisciplinary, and transdisciplinary knowledge) and the four practical skills

DATA (FY2018)

[Number of students recruited] 20 a year
[Percentage of overseas students and mid-career students (shakajin)] 34% - 0%
[Matured graduate schools, departments, etc.] 17 graduate schools, 54 departments; 1 office (Graduate School of Humanities), Department of Philosophy, Department of History and Geography, Department of Linguistics and Literature (Graduate School of Integrated Sciences for Global Society), Department of Integrated Sciences for Global Society (Graduate School of Human-Environment Studies), Department of Urban Design, Planning and Disaster Management, Department of Clinical Psychology and Community Studies, Department of Behavioral and Health Sciences, Department of Education, Department of Architecture (Graduate School of Law) Department of Law and Politics (Graduate School of Economics), Department of Economic Engineering, Department of Economic Systems (Graduate School of Science), Department of Physics, Department of Chemistry, Department of Earth and Planetary Sciences (Graduate School of Mathematics), Department of Mathematics (Graduate School of Systems Life Sciences), Department of Systems Life Sciences (Graduate School of Medical Sciences), Department of Medical Sciences, Master Course in Graduate School of Medical Sciences, Master Course in Graduate School of Health Sciences, (Graduate School of Dental

[Number of program graduates (including anticipated number)] 2 (FY 2015), 4 (FY 2016), 13 (FY 2017), 16 (FY 2018)
[Main destinations of program graduates (including anticipated destinations)] 9 to universities, 7 to private companies, 1 to public research institute, 1 to medical doctor

Science) Department of Dental Science (Graduate School of Pharmaceutical Sciences) Department of Medical Sciences, Department of Clinical Pharmacy (Graduate School of Engineering), Department of Chemistry and Biochemistry, Department of Materials Process Engineering, Department of Materials Physics and Chemistry, Department of Chemical Systems and Engineering, Department of Civil and Structural Engineering, Department of Urban and Environmental Engineering, Department of Maritime Engineering, Department of Earth Resources Engineering, Cooperative Program for Resources Engineering, Department of Applied Quantum Physics and Nuclear Engineering, Department of Mechanical Engineering, Department of Hydrogen Energy Systems, Department of Aeronautics and Astronautics, (Graduate School of Design), Department of Design Strategy (Graduate School of Information Science and Electrical Engineering) Department of Informatics, Department of Advanced Information Technology, Department of Electrical and Electronic Engineering (Interdisciplinary Graduate School of Engineering Sciences) Department of Applied Science for Electronics and Materials, Department of Molecular and Material Sciences, Department of Advanced Energy Engineering Science, Department of Energy and Environmental Engineering, Department of Earth System Science and Technology (Graduate School of Bioresource and Bioenvironmental

Sciences) Department of Bioresource Sciences, Department of Agro-environmental Sciences, Department of Agricultural and Resource Economics, Department of Bioscience and Biotechnology, Department of Innovative Science and Technology for Bio-industry (Graduate School of Integrated Frontier Sciences), Department of Kansei Science, Department of Automotive Science, Department of Library Science, Academic Research and Industrial Collaboration Management Office [Collaborating universities in Japan and overseas] 3 universities, 1 inter-university research institute National University of Laos / University Malaysia Sabah / Biyani group of colleges / Research Institute for Humanity and Nature [Collaborating organizations] 13 companies, 11 local public bodies Fujitsu / Kyocera / Mitsubishi Corporation / Toyota Motor Corporation / Conservation International Japan / Kyushu Railway Company / Hitachi, Ltd. / Nomura Research Institute / CITI Engineering / Carma Health Support / Kyushu Labour Bank / Kumamoto groundwater Foundation Kyushu Economic Research Center / Fukuoka Prefecture / Fukuoka-city / Tohima-city / Karatsu-city / Nagasaki-city / Nishin-city / Yuu-city / Tsushima-city / Saito-city / Kumamoto-city / Nakatsu-city

Inquiries: 092-802-6049 Website: <http://ketsudan.kyushu-u.ac.jp/>

The University of Tokyo

Graduate Program in Sustainability Science: Global Leadership Initiative



"Holistic," "resilient," and "transboundary" are three fundamental concepts of sustainability science. This program prepares global leaders capable of solving various complex problems who contribute to achieving a sustainable society, and who have mastered broad understanding, high specialization, broad vision, and ethical perspectives required for a sustainability studies approach.

[Contents of Diploma]

Degrees conferred: PhD degrees in Sustainability Science. Completion of "Graduate Program in Sustainability Science - Global leadership Initiative" is noted on the diploma.

Leading Toward a Resilient, Sustainable Society

In the 21st century humanity is threatened with climate change, loss of biodiversity, major catastrophes, depletion of natural resources, poverty, "super-aging" societies, and a host of other challenges. These issues are complex, full of ambiguities, and intertwined with one another. The main approach in the past was to segment each issue into smaller problems. To discover truly long-lasting solutions to these issues, a new approach that transcends the boundaries of academic disciplines must be developed. This novel approach is sustainability science.

In 2005, The University of Tokyo established the Integrated Research System for Sustainability Science (IR3S) and Graduate Program in Sustainability Science (GPSS). These programs have enabled The University of Tokyo to be a driving force in research and education for establishing sustainability studies position in academia, and toward the dissemination and application of the research results. The Graduate Program in Sustainability Science – Global Leadership Initiative (GPSS-GLI) was created in 2011 to complement these achievements.

Practical Education based on a Rich International Educational Environment and Practice in the Field

Global leaders require extensive knowledge in a specialization that contributes to realizing a highly resilient and sustainable society. In addition, a broad vision and ideas based on a rich educational background, international



The GPSS-GLI Seminar where students and instructors from various nationalities and backgrounds discuss sustainability issues in English.

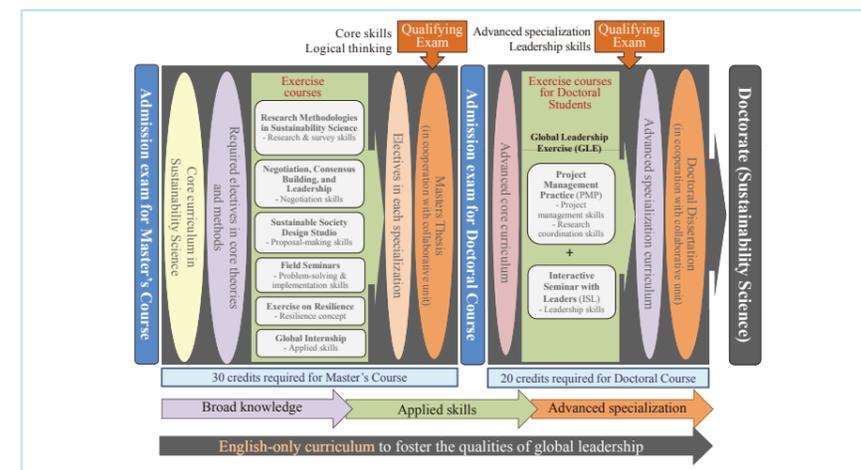
and social experience, and strong communication skills backed by experience in real-world situations are also critical. The GPSS-GLI program involves top class instructors from various academic disciplines throughout the university which enables students to obtain excellence in a specialization regardless of field or discipline from which they choose to approach sustainability. Weekly GPSS-GLI Seminars and semester poster sessions enable students to present their research and to view this broad field from a high vantage point.

The high quality English-only curriculum has attracted top-level students from all around the world, and it is this diversity that has proved instrumental in developing communication and team working skills that transcend nationalities and cultures. Also, the GPSS-GLI program offers a variety of opportunities for students to develop practical skills, global sensibilities, and the feel for real-world scenarios critical for becoming global leaders. Such opportunities include our Global Field Exercise where students accumulate experience in on-site research at locations around the world, our Exercise on Resilience where students examine contributions to reconstruction efforts following natural disasters, our Global Leadership Exercise where students engage in discussions with



Discussing the effects of global-scale changes and human activities on water resources. Global Field Exercise in an oasis city in China.

eminent individuals from international organizations and respected leaders from industry, and our Global Internship where students are afforded opportunities to put their studies into practice at international organizations as well as at national and foreign companies. GPSS-GLI welcomes students from diverse national and academic backgrounds who challenge others to improve through collaboration, and who desire to set – and continually re-set – the international standard for education in sustainability science and global leadership.



A curriculum that produces global leaders who contribute to problem solving with extensive knowledge in a specialization, broad vision, and broad educational background.

DATA (FY2017)

[Number of students recruited] 20 a year
[Percentage of overseas students and mid-career students (shakajin)] 80% - 55%
[Matured graduate schools, departments, etc.] 5 graduate schools, 3 divisions, 9 departments; 1 research institute; 1 affiliates institute (Graduate School of Frontier Sciences) 6 departments in Division of Environmental Studies (Department of Socio-Cultural Environmental Studies; Department of Natural Environmental Studies; Department of International Studies; Department of Environment Systems; Department of Human and Engineering Environmental Studies; Department of Ocean Technology, Policy and Environment, Division of Biosciences, and Division of Transdisciplinary Sciences (Graduate School of Engineering) Department of Urban Engineering (Graduate School of Agricultural and Life Sciences) Department of Global

[Number of program graduates (including anticipated number)] 1 (FY 2014), 4 (FY 2015), 8 (FY 2016), 6 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 9 to universities, 4 to private companies, 1 to public research institute, 3 to governmental agencies

Agricultural Sciences (Graduate School of Medicine) School of International Health/Global Health Sciences (Graduate School of Public Policy) (Atmosphere and Ocean Research Institute) (Integrated Research System for Sustainability Science) [Collaborating universities in Japan and overseas] 26 universities, 1 inter-university research institute United Nations University / Hokkaido University / Ibaraki University / Kyoto University / Osaka University / Aikita International University / National University of Singapore / Chinese Academy of Sciences / Asian Institute of Technology / Chulalongkorn University / Vietnam National University, Hanoi / Vietnam-Japan University / Vietnam National University, Ho Chi Minh City - University of Technology / Bogor Agricultural University / Arizona State University / Massachusetts Institute of Technology / Technological Institute of Costa Rica / University of Concepcion / Pontifical Catholic University of Chile / Vienna

University of Technology / Malmö University / Lund University / University of Ibadan / The University of Cape Town / University of Nairobi / University of the Free State / Research Institute for Humanity and Nature [Collaborating organizations] 9 companies, 2 public research institutes, 6 local public bodies, 1 international organization, 2 others Oraga Otsuchi Yume Hiroba / Shoshisha / E-Square Inc. / HAKUHODO Inc. / Habataki Inc. / Mitsui Fudosan Co., Ltd. / Shell International Ltd. / Stena AB / AB VOLVO / Tropical Agricultural Research and Higher Education Center (Costa Rica) / Stockholm Resilience Centre / Gomome Town Government, Akita Prefecture, Japan / Iwate Prefectural Government / Ohtsuchi Town Government, Iwate Prefecture / Kashiwa City Government / Kumamoto Prefectural Government / Malmö City / UNESCO / World Vision Japan / World Vision Rwanda

Inquiries: 04-7136-4877 Website: <http://www.sustainability.k.u-tokyo.ac.jp/>

Tokyo Institute of Technology

Academy for Co-creative Education of Environment and Energy Science (ACEEES)



ACEEES aims to nurture global leaders with expertise in both the environment and energy fields, who have a quick, accurate, self-reliant ability to extract and resolve issues, utilize multifaceted viewpoints to evaluate problems that transform spatio-temporally, and can lead innovation.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Science, Engineering, or Philosophy. Completion of "Academy for Co-creative Education of Environment and Energy Science" is noted on the diploma.

Cultivation of 2S x 3E Global Leaders Through the Three Co-creative Education

In order to create a sustainable society with assured safety (a 2S society), the relationships between energy, the economy, and the environment (the 3 Es), are becoming increasingly important. This educational program is centered on the "three co-creative education" These educations are: Interdisciplinary Co-creative, Industry-Government-University Co-creative, International Cooperation Co-creative. It is an integrated master's-doctoral education that cultivate global leaders who can play crucial roles in the 2Sx3E and create the innovation in both the environment and energy fields.

Fostering Specialization, Independent Problem-Solving, Internationalization, and Leadership

In our interdisciplinary co-creative education course program, master's students take five co-creative education courses (Advanced Energy, Next Generation Energy, Molecular/Bio-environment, Global/Urban-environment, Social Economy System) spanning three different disciplines (environment, energy, and human social science). By completing the interdisciplinary co-creative education courses and their "Specific Interdisciplinary Subject Research Skill" (laboratory rotation), students in the master's course gain a high expertise, the ability to see



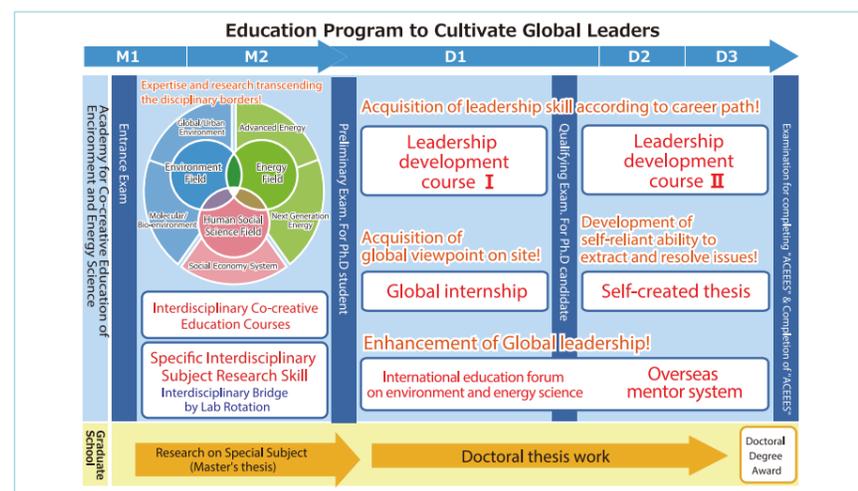
An example of students completing their Specific Interdisciplinary Subject Research. Students from environment, material science fields, and semiconductor fields work together on artificial photosynthesis research.

things from a wide perspective, and the ability to develop research transcending the disciplinary borders. Advancing to the doctoral program, students can take up a Global Internship and are required to take our Leadership Development Course I, featuring lectures from top researchers from international universities and industry. Furthermore, students who successfully complete their Qualifying Examination for Ph.D. candidates (Q.E.) can begin their Self-created Thesis Research. This part of the program involves independently working on an issue that is related to a topic outside of the student's own field of expertise, and aims to gain a self-reliant ability to solve issues. To expand the students' career paths, Leadership Development Course II is also a required subject. This course brings in business executives and experienced policymakers to lecture. Over 100 students and professors from our Graduate School and approximately 90 students, professors, and researchers from 30 overseas universities, companies, and institutions participate in the International Education Forum on Environment and Energy Science held every year. Students are tasked with an issue. They lodge together and work in groups of three students from different nationalities and



Three students of different nationalities and academic fields lodge together and engage in problem-solving at the International Education Forum on Environment and Energy Science.

academic fields to discuss and present on the topic. Students in the doctoral program receive individualized instruction from foreign mentors from different fields. Approximately 80% of our graduates go on to industry, policymaking, research institutions and more. Our graduates report very positive evaluations of the multifaceted viewpoints, international communication skills, and leadership skills that they obtained through their laboratory rotations, self-created thesis research, global internships, and international education forums.



Co-creative education program of environment and energy science

Inquiries: 03-5734-3955 Website: <http://www.eae.titech.ac.jp/ACEEES/>

DATA (FY2017)

[Number of students recruited] 40 a year
 [Percentage of overseas students and mid-career students (shakajin)] 35% · 10%
 [Matriculated graduate schools, departments, etc.] 4 schools, 14 graduate majors
 (School of Engineering) Mechanical Engineering; Electrical and Electronic Engineering; Industrial Engineering and Economics; Energy Science and Engineering; Engineering Sciences and Design; Nuclear Engineering
 (School of Science) Chemistry; Energy Science and Engineering

(School of Materials and Chemical Technology) Materials Science and Engineering; Chemical Science and Engineering; Energy Science and Engineering; Nuclear Engineering
 (School of Environment and Society) Architecture and Building Engineering; Civil Engineering; Global Engineering for Development, Environment and Society; Social and Human Sciences; Urban Design and Built Environment; Energy Science and Engineering; Engineering Sciences and Design; Nuclear Engineering
 [Collaborating universities in Japan and overseas] 6 universities

Georgia Institute of Technology / Korea Advanced Institute of Science and Technology (KAIST) / University of Cambridge / University of Wisconsin / University of Stuttgart / Tsinghua University
 [Collaborating organizations] 8 companies
 Hitachi, Ltd. / Showa Shell Sekiyo K.K. / Tokyo Gas Co., Ltd. / IHI / JX Nippon Research Institute, Ltd. / Fuel Cell Cutting-Edge Research Center Technology Research Association / Toshiba Corporation / Mitsubishi Chemical Corporation

[Number of program graduates (including anticipated number)] 3 (FY 2014), 9 (FY 2015), 17 (FY 2016), 27 (FY 2017)

[Main destinations of program graduates (including anticipated destinations)] 16 to universities, 35 to private companies, 4 to public research institutes

Nagoya University



Integrative Graduate Education and Research Program in Green Natural Sciences

A new degree program featuring collaboration between the sciences, engineering, and agriculture, as well as partnerships with universities and laboratories.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Science, Engineering, or Bioagricultural Science. Completion of "Integrative Graduate Education and Research Program in Green Natural Sciences" is noted on the diploma.

Training Human Resources for Next Generation Green Natural Sciences

Finding lasting solutions to humanity's environmental and energy problems, and the development of sustainable societies are the most important issues facing science today. With regard to the construction of new education research systems to solve these difficult issues, and to the education of international leaders who can take on the task of solving these problems, we believe there is a generational demand for high-grade graduate level education. This program aims to train business researchers who can bring new ideas to scientific disciplines, and environmental science coordinators and mentors who can excel on the world stage. People who can fill these roles must have, broadly speaking, four qualities in common: 1. Scientific ability and social skills in order to look upon environmental problems from a broad perspective. 2. The ability to extract practical results from fundamental research. 3. An international personality in order to play an active role on a global scale. 4. Leadership Skills This program has been designed to foster these four qualities. The main principles at the heart of this program's design are that it should promote friendly competition and improvement through simple selection, that students should play leading roles, that educational achievements should be made visible, that students should receive support for their career paths, and that there should be support for female students. We believe that if our outstanding faculty and students and young researchers challenge each other to improve, and if they



Annual Report Meeting: A glamorous reception for Nobel laureates.

can develop freely, then five or ten years down the road this program will see its results in the leaders that they grow into, and the new research results that they produce.

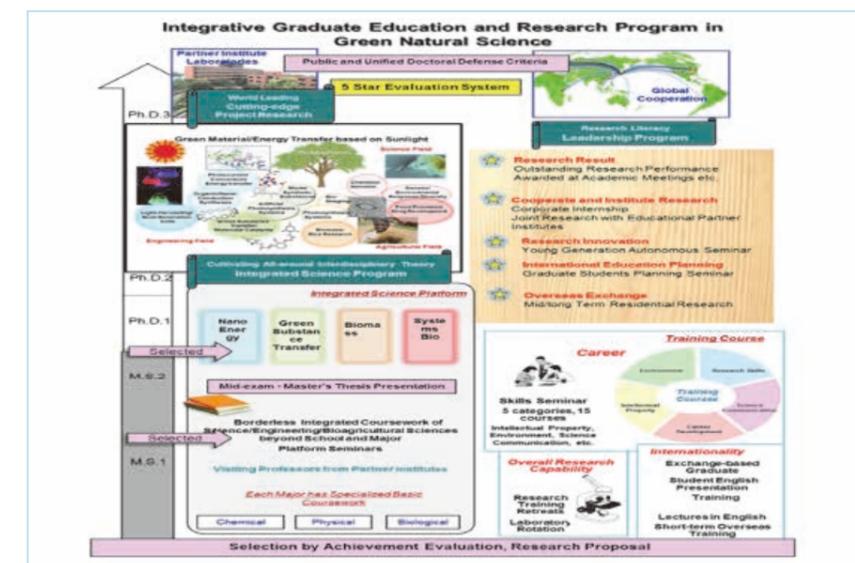
Students plan, design, and execute their own ★ Education Plan Ideas.

Every year, this program offers seminars where graduate students can open up new research fields that they themselves plan, design, and work on. Other annual offerings include workshops for pioneering work that crosses the boundaries of multiple disciplines. These types of activities are part of our ★ International Education Plan initiative. Plans enacted in the past include "Interdisciplinary Union Research Content," "Invitation to Bioinformatics," and "Drawing the Career of Doctorate Students Who Open Up the Future." Taking one specific example, "Environment, Agriculture, and Culture Joined by Soil" held in 2015, soil scholars, cultural anthropologists, environmentalists, and rice farmers were invited to host a soil-themed seminar covering diverse issues in



The International Education Planning Seminar.

the environment, society, agriculture, and culture. This event drew a large audience including nearby residents. Because this event united science and society it was highly acclaimed. As a result, a new outreach seminar was started. This was an example of learning not stopping at the classroom door. This event started a system where students could plan things for themselves and learn from each other. Certainly, this is the sort of autonomy that our program strives for coming into full bloom.



DATA (FY2017)

[Number of students recruited] 60 a year
 [Percentage of overseas students and mid-career students (shakajin)] 10% · 0%
 [Matriculated graduate schools, departments, etc.] 3 graduate schools, 8 departments
 (Graduate School of Science) Department of Chemistry, Department of Biological Science
 (Graduate School of Engineering) Department of Chemical and Biological Engineering, Department of Molecular Design and Engineering, Department of Crystalline Materials Science

(Changed of Name from 2017.4), Molecular and Macromolecular Chemistry, Materials Chemistry, Biomolecular Engineering
 (Graduate School of Bioagricultural Science) Department of Bioengineering Sciences, Department of Applied Molecular Biosciences, Department of Biological Mechanisms and Functions, (Changed of Name from 2017.4), Molecular and Macromolecular Chemistry, Materials Chemistry, Biomolecular Engineering

[Number of program graduates (including anticipated number)] 22 (FY 2014), 25 (FY 2015), 33 (FY 2016), 20 (FY 2017)

[Main destinations of program graduates (including anticipated destinations)] 33 to universities, 50 to private companies, 9 to public research institutes, 1 to governmental agency

Inquiries: 052-747-6447 Website: <http://iger.bio.nagoya-u.ac.jp/>

[Collaborating universities in Japan and overseas] 2 inter-university research institutes
 National Institutes of Natural Sciences, Institute for Molecular, National Institute for Basic Biology
 [Collaborating organizations] 2 companies, 2 public research institutes
 Toyota Central R&D Lab., INC. / Toyota Physical and Chemical Research Institute / RIKEN / AIST

Keio University

Global Environmental System Leaders Program



This program aims to train Global Environment System Leaders who have the understanding, knowledge, and technical skills needed to lead maintenance, adaptations, and improvements to the environment on a global scale. Our Global Environment System Leaders can plan and build both technical and social systems for the environment.

[Contents of Diploma]
Degrees conferred: PhD degrees in either Media and Governance, Science, or Engineering. Completion of "Global Environmental System Leader (Doctor)" is noted on the diploma.

Raising Leaders Capable of Environmental Systems and Social-Rule Planning

This program aims to train Global Environment System Leaders who have the understanding, knowledge, and technical skills needed to lead maintenance, adaptations, and improvements to the environment on a global scale. Our Global Environment System Leaders can plan and build both technical and social systems for the environment. At the heart of our Graduate School's Global Environmental System education is international development. That is why we establish research guidance systems in collaboration with international industry, academia, and NPOs. Our partners are international universities and research institutes of the highest standard, and international universities and research institutes in areas that handle environmental issues. That is also why we train international Global Environmental Systems leaders.

International Industry, Academia, and NPO Collaborative Research Guidance System — International training program

GESL's three main pillars are: 1. Research guidance systems in collaboration with international industry, academia, and NPOs. 2. An "International Training System"

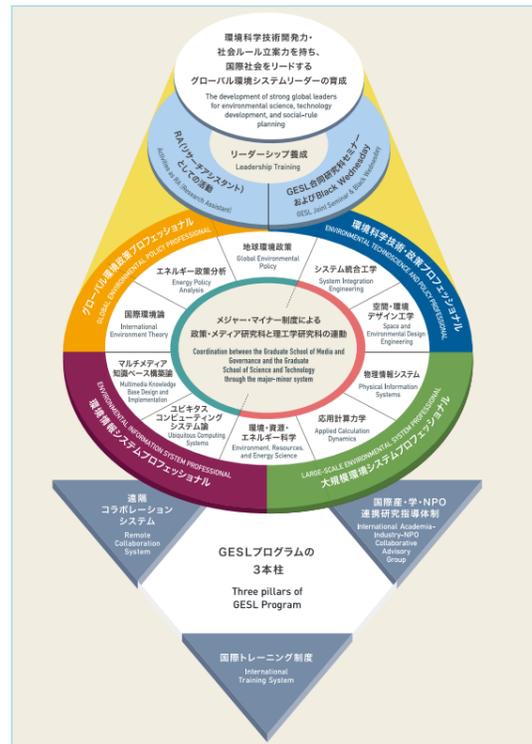


International training, joint experiments with international partner schools (above)
International training reports, minor/final research presentation (below)

borne of unions, both distant and near, with international universities and research institutions of the highest standard, and international universities and research institutions in areas that handle environmental issues. 3. Creating an environment of long-distance collaboration, where students work together with researchers in distant regions in real-time, and where students can always engage with foreign researchers in international fields to sharpen each other's skills. In this environment, we educate Global Environmental System Leaders. Our research guidance system in collaboration with international industry, academia, and NPOs is formed from three or more instructors and specialists from institutions including international universities and research institutions of the highest standard, and international universities and research institutes in areas that handle environmental issues. It is a research guidance system that uses a distance collaboration system with places outside of Japan, and has daily international points of contact. Through this integrated system we train leaders in the creation of global environmental systems. The products of our system are practical and have cross-disciplinary understanding. In our international research and education environment, students receive research guidance accompanied by partnerships with other departments, and earn knowledge, technical ability, and research ability related to the planning and construction of practical global environmental systems. Our research guidance system in collaboration with international industry, academia, and NPOs is composed of a total of three instructors and specialists. These come from our 113 collaborating institutions and partner bases worldwide, and include one professor or researcher, one policymaker or media researcher, and one researcher from science and engineering.



GESL International Workshop/Seminar (Held approximately 20 times per year)



This integrated five-year doctoral degree program trains international leaders in global environmental systems.

Inquiries: 0466-49-3410 Website: <http://gesl.sfc.keio.ac.jp/>

DATA (FY2017)

[Number of students recruited] 19-20 a year
[Percentage of overseas students and mid-career students (shakajin)] 39% - 25%
[Matured graduate schools, departments, etc.] 2 graduate schools, 4 majors
[Graduate School of Media and Governance] Major in Media and Governance
[Graduate School of Science and Technology] School of Fundamental Science and Technology, Integrated Design Engineering, Science for Open and Environmental Systems
[Collaborating universities in Japan and overseas] 72 universities
Princeton University / University of Cambridge / Tampere University of Technology / University of California / Colorado School of Mines / University of Nebraska / University of Hawaii / Imperial College London / University of West Bohemia / Royal Institute of Technology / Chulalongkorn University / Electronic Engineering Polytechnic Institute of Surabaya / Korea Advanced Institute of Science and Technology / Industrial Technology Research Institute of Taiwan / National Central University in Taiwan / Charles University / Vietnam National University / University of Jyväskylä / University of Kiel / Beijing Normal University / Carnegie Mellon University / University of Southern California / Martin Luther University of Halle-Wittenberg / University of Oulu / Lund University / Ecole Centrale / Hanoi University of Science and Technology / Fudan University / Nanyang University / Asian Institute of Technology / National University of Malaysia / Nanyang Technological University / University of Oxford / Free University of Berlin / University of the South Pacific / University of Malaya / Shanghai Normal University / State Polytechnic of Malang / Shaanxi Normal University / University of Nairobi / World Islamic Sciences Education University / Fath Sultan Mehmet Wafiq University / Columbia University / Nanyang Technological University / Purdue University / Technical University of Munich / University of California / University of Naples Federico II / Bohol Island State University / Brawijaya University / Ball State Polytechnic / Chiba University / University of Tsukuba / Chitose University of Science and Technology / The University of British Columbia / University of Twente / Martin Luther University of Halle-Wittenberg / University of Minnesota / University of Greifswald / University of Otago / Tashkent State Technical University / Istanbul Ticaret University / Università della Svizzera italiana / Universiti Teknologi Malaysia / University of Michigan / Leipzig University / Transport and Telecommunication Institute / Northwestern University / Malaysia-Japan International Institute of Technology / ETH Zurich / Stanford University / Illinois Institute of Technology / Dartmouth College
[Collaborating organizations] 23 companies, 13 public research institutes, 2 local public bodies, 3 international organizations
ABB Corporate Research Center / Maui Economic Development Board, Inc. / Engineering Advancement Association of Japan (ENAA) / TOSHIBA CORPORATION / Toray Industries, Inc. / JSOL Corporation / Sumitomo Rubber Industries, Ltd. / Kirin Holdings Company Limited / Intel Corporation / Nikken Sekkei Ltd. / Asahi Kasei Corporation / NEC Corporation / Ogyama, Inc. / Fuji Xerox Co., Ltd. / Dream Medical Partners Corporation / Pizax Medical Devices, Inc. / Digital Garage, Inc. / Media House Central German Newspaper / Microvention, Inc. / NIKKEN SEKKEI RESEARCH INSTITUTE / VTT Technical Research Centre of Finland Ltd. / Max-Planck-Institut für Physik / National Electronics and Computer Technology Center (NECTEC) / Central Research Institute of Electric Power Industry / Japan Agency for Marine-Earth Science and Technology / National Institute for Minamata Disease / European Organization for Nuclear Research (CERN) / Austrian Institute of Technology (Austria) / National Institute of Advanced Industrial Science and Technology (AIST) / Japan Aerospace Exploration Agency (JAXA) / National Institutes for Quantum and Radiological Science and Technology / Institute of Physical and Chemical Research (RIKEN) / Marine and Coastal Resources Research and Development Center, Eastern Gulf of Thailand (Thailand) / Department of Trade and Industry - Bohol / Invest Victoria / United Nations Environment Programme (UNEP) / United Nations Development Programme (UNDP) / International Thermonuclear Experimental Reactor (ITER)

[Number of program graduates (including anticipated number)] 3 (FY 2016), 17 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 7 to universities, 6 to private companies, 1 to public research institute, 1 to start-up business

Tokyo University of Agriculture and Technology

Creation of the Practical Science Leading Graduate School for Green and Clean Food Production



To drastically change food productivity and energy-dependency, we need leaders who, based on a deep understanding of the basic technologies of agriculture and engineering, understand the mutually indivisible relationships between food, environment, and energy, and who will take on the ultimate challenge of survival of the human race with passion and commitment.

[Contents of Diploma]
Degrees conferred: PhD degrees in either Agriculture, Engineering, or Philosophy. Completion of "Program for Leading Graduate School" is noted on the diploma.

Global leaders who will transform the productivity and energy-dependency of food

The aim of this Leading Program is to foster talent that can usher in an age of non-petroleum-dependent food production, free from the global crisis in which the majority of food production is dependent on petroleum energy. In other words, for the human race to lead lives of both physical and emotional richness while maintaining the global environment into perpetuity, it is essential that we take on the ultimate global-scale challenge of "food," which is the source of life, and innovate in food productivity and energy-dependence. To achieve this, we believe in the need for leaders who, based on a deep understanding of the basic technologies of agriculture and engineering, understand the mutually indivisible relationships between food, environment, and energy, and who will take on the ultimate challenge of survival of the human race with passion and commitment.

Acquire practical skills for setting career development goals and innovation

This program will cultivate leaders who possess the foundations for integrating agriculture and engineering, which are both major fields of "practical science," and who have innovative creativity, skills in international expansion, and personal and interpersonal skills and abilities. Leaders need to understand a diverse range of scientific and



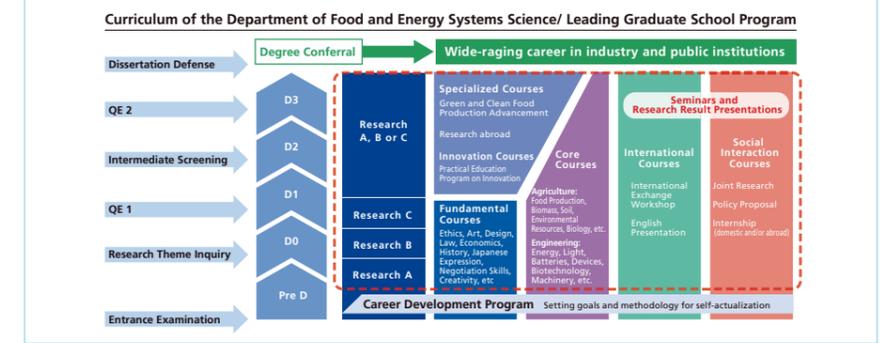
Training in Advance at an international exchange workshop

technological domains and to possess the ability to make judgments and assessments. Furthermore, to cultivate the ability to achieve things in society and skills in international development, practical education that utilizes collaborations with industry, government, and academia, as well as overseas collaborations, is essential. In this program, after matriculation all students will spend the first six months in the Career Development Program, during which they will set goals for their own self-development and become aware of ways of achieving those goals. After those six months are up, they will take Innovation Subjects and International Programs, and will receive guidance from three instructors through a rotation of research laboratories. To strengthen students' personal and interpersonal abilities and skills, the program also has Fundamental Subjects that focus on the humanities, social sciences, and expression in foreign language. Students will also experience study abroad (long-term overseas training) and practical internships at companies through Social Interaction Subjects, to cultivate leaders with practical skills. To ensure the students' autonomy, they will be provided with research funds to use at their own discretion. This scheme will allow them to use their own will and judgment to participate in academic conferences and conduct surveys. After learning the process of innovation creation in the Training in Advance Process, they will be given multiple problems raised by companies as part of a process of collaborative education with external organizations.



Outcomes Presentation: Poster presentation in English on the year's activities

Students will form their own teams of people who want to address each of those research subjects and those teams will proceed to come up with project proposals. Through these processes, people with multidisciplinary expertise will develop practical skills in handling developmental needs and achieve outcomes that will lead to the commencement of specific projects. The Innovation Programs, which will include an industry participation, will provide staged training with an emphasis on practicality in the areas of (1) innovation model education, (2) methods for identifying objective value, (3) methodologies needed to realize innovation, (4) advanced presentation training, (5) team-building and business plan development, and (6) establishment of a career building process. These subjects will be delivered in collaboration with SRI International (Menlo Park, U.S.A.), Steinbeis University (Stuttgart, Germany), and other institutions.



Curriculum focuses on setting goals for self-development, etc.

DATA (FY2018)

[Number of students recruited] 20 a year (FY 2013-2014), 20 (10 students of Food and Energy Systems Science Department and 10 students of program students) a year (FY 2015-2017)
[Percentage of overseas students and mid-career students (shakajin)] 20% - 1%
[Matured graduate schools, departments, etc.] 4 graduate schools, 12 departments
(Graduate School of Agriculture), Biological Production, Applied Biological Chemistry, Bioregulation and Bionteraction, Environmental Science on Biosphere (United Graduate School of Agricultural Science), Biological Production, Applied Life Science, Symbiotic Science of Environment and Natural Resources (Graduate School of Engineering) Biotechnology and

Life Science, Applied Chemistry (Graduate School of Bio-Applications and Systems Engineering) Bio-Functions and Systems Science, Cooperative Major in Advanced Health Science, Food and Energy Systems Science [New graduate schools and departments (etc.) established for the program] Department of Food and Energy Systems in the Graduate School of Bio-Applications and Systems Engineering was newly established in FY 2015. [Collaborating universities in Japan and overseas] 23 universities
California Institute of Technology / University of California, Santa Barbara / University of California, Davis / Cornell University / Duke University / Sapienza University of Rome / University of Milan / University of Florence / Aalto University / University of Bonn / Steinbeis University / Ankara University / University of Oxford / Technical University of Munich / National

Chiao Tung University / Wageningen University / Stanford University / University of Lisbon / University of Oviedo / United Arab Emirates University / National Agrarian University La Molina / Chapingo Autonomous University / Sophia University
[Collaborating organizations] 8 companies, 3 public research institutes, 1 international organization
Mitsubishi Corporation / Mitsui Chemicals, Inc. / Hitachi, Ltd. / Mitsubishi Research Institute, Inc. / TOSHIBA CORPORATION / SHIMADZU CORPORATION / Mitsubishi Chemical Corporation / SRI International / Chinese Academy of Sciences / Industrial Technology Research Institute / CIMMYT / FAO

[Number of program graduates (including anticipated number)] 5 (FY 2016), 6 (FY 2017), 18 (FY 2018)
[Main destinations of program graduates (including anticipated destinations)] 9 to universities, 18 to private companies, 1 to public research institute, 1 to other

Kyushu University

Advanced Graduate Program in Global Strategy for Green Asia



Our aim is to cultivate leadership in science and engineering to ensure the coexistence of greening and economic growth in Asia (Green Asia). We will aim to realize a Green Asia by building global networks that are rooted in the history and culture of the countries of the Asia-Oceania region and that will bring about a synergistic effect between ecology and economic growth.

[Contents of Diploma]
Degrees conferred: PhD degrees in either Engineering, Science, or Philosophy. Completion of "Advanced Graduate Program in Global Strategy for Green Asia" is noted on the diploma.

Cultivation of leadership in science and engineering for Asia

Finding a balance between dramatically reducing the use of resources and achieving economic growth is a challenge for human society. Asia is a region of great cultural and social diversity and, while burdened by the mutual contradictions of economic growth and environmental issues, is developing into a melting pot of much vitality. In this respect, Asia offers an excellent model for the wider global community. This program aims to cultivate leaders in science and technology who are able to contribute to the realization of Green Asia where ecology and economic growth can coexist. Graduate students from Japan and Asia whose specialization (research field) is in one of three disciplines—materials science, system engineering, or resource engineering—will study the other two of those specialized fields. They will also undertake studies in the fields of environmental studies, sociology and economics, and accumulate practical experiences in Japan and overseas. Through this curriculum, students will acquire the five abilities befitting a leader of science and technology in Asia, namely Research skills, Practical know-how, Critical thinking, Global perspective, and Leadership, while at the same time developing professional networks in Asia. This is what Kyushu University's PhD leading program, the Advanced Graduate Program in Global Strategy for Green Asia will deliver.

Key features of the program

1. Accumulation and development of educational systems: The program will accept graduates from a wide range of universities in Japan and overseas, as well as foreign students from Asia (through introduction of an online application system, advertising on study abroad websites, etc.) and pursue multidisciplinary graduate education programs. This will be based on proactive initiatives in the reform of post-graduate education.
2. Detailed curriculum: In addition to effective curriculum elements in the science and technology fields (international/corporate internships, international exercises, etc.), elements of the humanities and social sciences (sociology, economic systems studies, Green Asia Thesis, etc.) will also be incorporated into the curriculum.
3. Research learning support: Up to five mentors including outside researcher(s) or engineer(s) will form a mentoring and care unit for each student. A Research Laboratory Rotation scheme will be introduced, in which all students will spend three months each at three different research laboratories, conducting research.
4. Asian networks, interdisciplinary partnerships and academia-industry-government partnerships: The program will take advantage of our track record in partnerships with over 30 Asian educational and research institutions and 58 examples of comprehensive

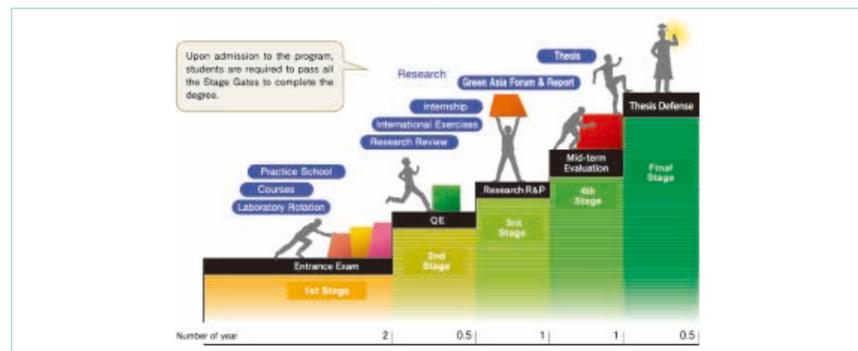


Key program features

- collaboration projects in Japan. Partnerships between the humanities and sciences disciplines will be conducted to build a conception of industry for Green Asia.
- 5. Program composition based on educational effectiveness guarantee systems and external assessment: Portfolios for each student will be used to accumulate records of educational results and guidance.
- 6. Greater depth of green engineering geared toward adding value to existing technologies: The program will cultivate professionals who can propel the realization of Green Asia forward, based on upstream thinking abilities, analysis and abstractive skills, and idea expansion skills.
- 7. Establishment of Green Asia Education Center. Hosting of the International Forum for Green Asia.



Cultivation of professionals through the Advanced Graduate Program in Global Strategy for Green Asia



A staged gate system has been introduced, in which students will pass through five gates from matriculation to completion of the program (conferral of PhD).

DATA (FY2018)

[Number of students recruited] 10 a year (Japanese students), 10 a year (overseas students)
[Percentage of overseas students and mid-career students (shakaijin)] 70% - 15%
[Matriculated graduate schools, departments, etc.] 2 graduate schools, 4 departments
(Interdisciplinary Graduate School of Engineering Sciences) Department of Energy and Environmental Engineering, Department of Molecular and Material Sciences, and Department of Applied Science for Electronics and Materials

(Graduate School of Engineering) Department of Earth Resources Engineering
[Collaborating universities in Japan and overseas] 6 universities
Mahidol University / Malaysia-Japan International Institute of Technology / Institut Teknologi Bandung / Indian Institute of Technology Madras / National University of Singapore / University of Dhaka

[Collaborating organizations] 5 companies, 3 local public bodies
Kyushu Electric Power Co., Inc. / Nippon Steel & Sumitomo Metal Corporation / Ube Industries, Ltd. / Sumitomo Metal Mining Co., Ltd. / Daikin Industries, Ltd. / Fukuoka Prefecture / Fukuoka City / Kitakyushu City

[Number of program graduates (including anticipated number)] 5 (FY 2016), 5 (FY 2017), 16 (FY 2018)
[Main destinations of program graduates (including anticipated destinations)] 7 to universities, 11 to private companies, 4 to public research institutes

Inquiries: 092-583-7823 Website: <http://www.tj.kyushu-u.ac.jp/leading/>

University of Tsukuba



Ph.D. Program in Human Biology

The Ph.D. Program in Human Biology (HBP) aims to foster global leaders in the fields related to human biology; leaders who, through a deep understanding of the issue facing human society today, will contribute to the health, security, and happiness of the people generations of the future.

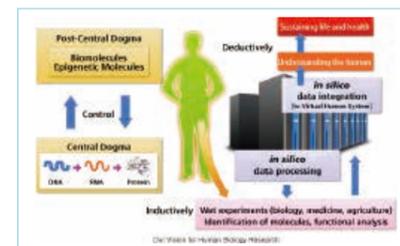
[Contents of Diploma]
Degrees conferred: PhD degrees in Human Biology. Completion of "Doctor of Philosophy in Human Biology" is noted on the diploma.

What is Human Biology?

Human Biology is a relatively new area of study in the biological sciences, which uses an interdisciplinary approach to focus on understanding the human being as an organism in its biological and cosmological contexts – our place on the space-time axis of biological and cosmic evolution. In this program, students will learn the essential principles of human biology, focus on DNA analysis to master the science and control of epigenetic molecules and develop strength of judgment, the ability to make scientific breakthroughs, and the know-how and determination to carry research through to completion.

Program Features

1. Cultivating International Leaders
Our program will train specialists with integrated technical knowledge and research abilities in life science, medicine, chemistry and computing technology who study the mechanisms of maintenance, adaptation and inheritance of human life and can lead the establishment of sustainable human life in the global society. The curriculum of this program is designed to cultivate in our scholars a spirit of integrity and enthusiasm, keen eyes, and serendipity, as well as professional knowledge and technologies. Our global voyage style-study is an advanced stage of young samurai mushashugyo (errantry) study, which is filled with scientific curiosity and a sense of adventure as students engage in human biology training outside and inward of Japan. The courses ignite a passion for scientific



Our Vision for Human Biology Research

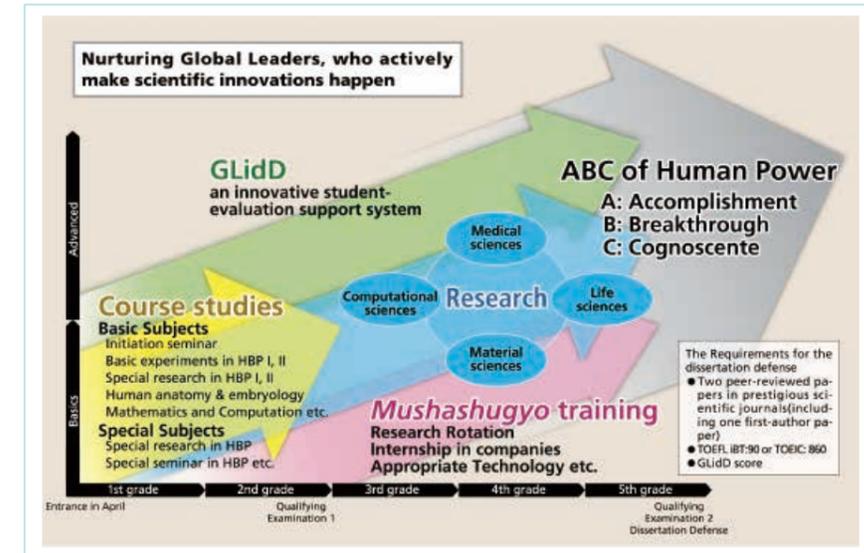
enquiry, a broadminded outlook, and the samurai's never-give-up spirit!
2. A truly interdisciplinary degree program
The study of human biology is multidisciplinary venture that brings together a wide range of expertise in medicine, biology, physics, chemistry, mathematics, and computational science. For this reason, 71 instructors from a variety of departments join together to cross the boundaries of their disciplines and provide their expert knowledge and technical skill. Not only do these instructors come from the University of Tsukuba but 11 members from private companies and independent research institutions as well as 33 academics from overseas universities also participate in the program. Through interaction with such a diverse and experienced faculty team, students receive invaluable insights and advice to steer them in their future career paths. For example, in the Entrepreneurship Training course, Business Leaders' seminar and Home Internship, taught by professional leaders from various fields, students learn the knowledge



Home internship engages the students in on-campus internships.

and skills necessary for developing scientific research into enterprising business ventures.

Five-Year Integrated Doctoral Program



The curriculum of this program is designed to cultivate ABC of Human Power as well as professional knowledge.

DATA (FY2017)

[Number of students recruited] 20 a year
[Percentage of overseas students and mid-career students (shakaijin)] 64% - 0%
[Matriculated graduate schools, departments, etc.] 4 graduate schools, 9 departments
(Graduate School of Comprehensive Human Sciences) Biomedical Sciences, Clinical Sciences, Medical Sciences
(Graduate School of Life and Environmental Sciences) Biological Sciences, Life Sciences and Bioengineering, Agro-bioresources Science and Technology
(Graduate School of Systems and Information Engineering) Computer Science

(Graduate School of Pure and Applied Sciences) Mathematics, Chemistry
[Collaborating universities in Japan and overseas] 20 universities
University of Bordeaux / University of Edinburgh / Uppsala University / Harvard University / University of California, San Francisco, Irvine / University of Texas / Pennsylvania State University / University of Bonn / Leiden University / University of Szeged / University of Bologna / Medical University of Vienna / Viet Nam National University Ho Chi Minh City / Ho Chi Minh City Medicine and Pharmacy University / Hue University Of Medicine and Pharmacy / CHA University / National Taiwan University / Yonsei University / Tsinghua University / Tokyo University of Science

[Number of program graduates (including anticipated number)] 7 (FY 2016), 11 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 11 to universities, 4 to private companies, 3 to public research institutes

Inquiries: 029-853-7085 Website: <http://hbp.tsukuba.ac.jp/>

[Collaborating organizations] 6 companies, 1 public research institute
Ajinomoto Co., Inc. / Kao Corporation / Kyowa Hakko Kirin Co., Ltd. / Shimadzu Corporation / Sumitomo Chemical Co., Ltd. / Mizuho Information & Research Institute, Inc. / Institute of Tropical Biology, Vietnam

The University of Tokyo

Graduate Program for Leaders in Life Innovation (GPLLI)



This is a multidisciplinary degree program that brings together medicine, engineering, pharmaceutical sciences, and biological sciences toward the creation of global, cutting-edge medical treatment development systems. This program educates students to develop global leadership in diverse and complex aspects - from basic to clinical application, and from medication to medical devices - which support life innovation.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Medicine, Engineering, Pharmaceutical Sciences, or Sciences. Completion of "Graduate Program for Leaders in Life Innovation" is noted on the diploma.

Developing Leaders in Science.

In this program, we integrate education and research resources of international caliber. We educate students to develop leadership in diverse and complex aspects that support life innovation - from basic to clinical application, and from medication to medical devices. Advanced medical development systems are complex. Thus, a multidisciplinary knowledge base and a complex set of abilities called "leadership" (solid basis in specialty, broad perspectives, communication skills and deep insight) are required of leaders to integrate people from different backgrounds. This interdisciplinary program was developed to bring together medicine, engineering, pharmaceutical sciences, and biological sciences toward the creation of global, cutting-edge healthcare development systems. It cultivates international leaders who can meet the requirements listed above.

Through Lectures and On Site, Learning from Leaders

Japan is a world leader in medical technology. It is anticipated that practical application of Japan's medical technology in forms such as medicine, medical devices and regenerative medicine will raise globally competitive industries, as well as contribute to raising the standard of citizens' medical treatment and health. Life science is at the base of these endeavors, and in order to realize these expectations, a technological revolution is needed in the field. However, leading the way toward the practical application of the cutting-edge research with universities



Presentation Workshop: Planned by project professors, the workshop develops practical globally competitive abilities through presentations and discussions in foreign institutions.

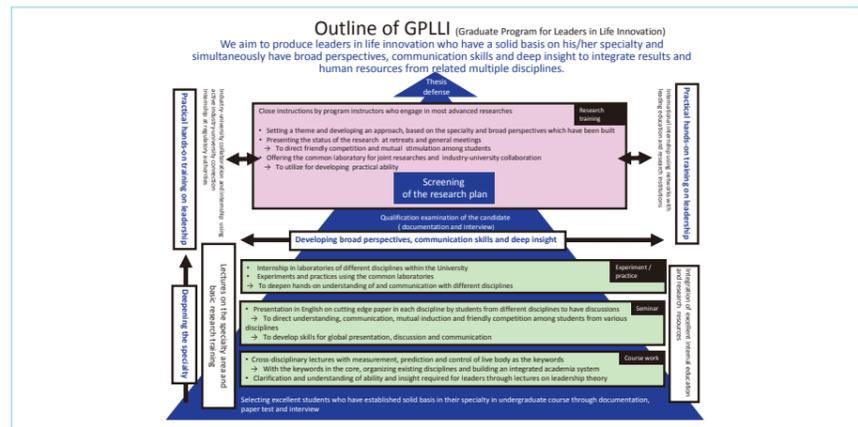
as the starting point is not easy. Not only is it necessary to integrate excellent knowledge that crosses the boundaries between specialized academic fields, it is also necessary to gain collaboration among patients, practitioners, and industry in order to develop that research. In order to obtain the cooperation of all the parties involved, and to bring life innovation to fruition, it is imperative to have leaders with a strong ability to thrust things forward. Moreover, leaders must have a strong base in their specialized fields, be able to grasp the needs of society and the markets, and coordinate collaboration among specialists in different fields. We believe that it is leaders that can bring together all these skills that are in need. The role that these "science leaders" will play will not be limited to the universities. Science leaders will also be active as technologists and business people who lead the way toward practical applications of medicinal products and devices in industry. They will be active as doctors who perform research and treatment based on the needs of their patients. Science leaders will also act as policymakers and evaluators who compile international policies and evaluation standards in healthcare. With this program, we have developed a new curriculum for leaders bringing together the four different graduate schools involved in life innovation (medicine,



Student seminar: Explaining and discussing research in English with foreign researchers and GPLLI graduates.

engineering, pharmaceutical sciences, and sciences). Participating students attend lectures on cross-disciplinary cutting-edge technology while cultivating practical skills through internships. Internships are held at research centers including hospitals, foreign universities, medical treatment facilities, national and international companies, and government offices. Furthermore, skill lectures and tutorials by leaders invited from the front lines of industry, academia, and government teach students both the skills and the mindset necessary to be a leader.

A Degree Program that Trains Leaders



Developing abilities that bring together knowledge and people from different fields: Broad vision, communication skills, and insight, built around a solid axis of one's own specialization.

Inquiries: 03-5841-0246 Website: <http://square.umin.ac.jp/gplli/>

DATA (FY2017)

[Number of students recruited] 48 a year (FY 2012-2015), 40 a year (FY 2016-2017)
[Percentage of overseas students and mid-career students (shakajimi)] 5% - 4%
[Matriculated graduate schools, departments, etc.]
4 graduate schools, 22 departments, 2 affiliated institutes
(Graduate School of Medicine) Molecular Cell Biology, Functional Biology, Pathology, Immunology and Microbiology, Radiology and Biomedical Engineering, Neuroscience, Social Medicine, Internal Medicine, Surgical Sciences, Reproductive, Developmental and Aging Sciences
(Graduate School of Engineering) Bioengineering, Materials Engineering, Chemistry and Biotechnology, Chemical System Engineering, Applied Chemistry, Electrical Engineering and Information Systems, Mechanical Engineering, Precision Engineering, Nuclear Engineering and Management, Applied Physics
(Graduate School of Pharmaceutical Sciences) Pharmaceutical Sciences, Pharmacy
(Graduate School of Science) Biological Sciences

[Number of program graduates (including anticipated number)] 26 (FY 2014), 34 (FY 2015), 44 (FY 2016), 44 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 47 to universities, 60 to private companies, 8 to public research institutes, 4 to governmental agencies, 4 to medical doctors, 1 to start-up business, 3 to others

[Collaborating universities in Japan and overseas] 42 universities
Friedrich-Schiller-University Jena / Uppsala University / Yale University / University of Edinburgh / University of Oxford / Gurdon Institute / California Institute of Technology / University of California, Irvine / San Diego / Berkeley / Karolinska Institutet / Clemson University / University of Cambridge / Colorado State University / Columbia University / University of Chicago / Johns Hopkins University / National University of Singapore / University of Cincinnati / Eidgenössische Technische Hochschule Zürich (ETH) / Ecole polytechnique fédérale de Lausanne (EPFL) / Stanford University / Dalhousie University / University of Dundee / The University of Tübingen / University of Texas (MD Anderson Cancer Center) / Technion - Israel Institute of Technology / Tel Aviv University / Technische Universität Dresden / Universität Basel / University of Heidelberg / Brown University / Brandeis University / Université Libre de Bruxelles / Hebrew University of Jerusalem / University of Helsinki / Ben-Gurion University of the Negev / University of Paul Sabatier / The University of Massachusetts / The University of Manchester / Montpellier University / Johannes Gutenberg-Universität Mainz / Ludwig-Maximilians-Universität München / The

Weizmann Institute of Science / University of Washington
[Collaborating organizations]
32 companies, 3 public research institutes, 1 international organization, 3 hospitals
Acturus Therapeutics Ltd / Ajinomoto Co., Inc. / AbbVie Inc. / Astellas Pharma Inc. / Eli Lilly and Company / Eisai Co., Ltd. / Olympus Corporation / Carl Zeiss AG / Kyowa Hakko Kirin Co., Ltd. / Santen Pharmaceutical Co., Ltd. / GE Healthcare Japan / Shimadzu Corporation / The Jackson Institute / St. Luke's International Hospital / Daiichi Sankyo Co., Ltd. / Takeda Pharmaceutical Co., Ltd. / Mitsubishi Tanabe Pharma Corporation / Tanabe Research Laboratories / Chugai Pharmaceutical Co., Ltd. / Teijin Limited / Toshiba Medical Systems Corporation / TOTO / Innovation Center of NanoMedicine / NanoCarrier Company Limited / Novartis International AG / BIOCORN / Hitachi Ltd. / Hitachi General Hospital / Hitachi High-Technologies Corporation / Fred Hutchinson Cancer Research Center / Horiba Ltd. / Massachusetts General Hospital / Mitsubishi Chemical Corporation / Mayo Clinic / Euglena / National Rehabilitation Center for Persons with Disabilities / National Institutes of Health, NIH / Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V. / WHO

Tokyo Institute of Technology



Education Academy of Computational Life Sciences (ACLS)

This program seeks to contribute to the creation of new value that goes beyond the boundaries of the life sciences and computer science. To that aim, the program aims to train human resources that are top-level specialists in life sciences and can use leading-edge computer science technologies, and human resources that are top-level specialists in computer science and can understand the methodology and ways of thinking of life sciences.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Engineering, Science, or Philosophy. Completion of "Education Academy of Computational Life Sciences" is noted on the diploma.

Training Γ (gamma)-type Specialists in an Interdisciplinary Field in Life Sciences and Computer Science

Life sciences involve comprehensive studies on life phenomena from all angles including the physical, chemical, and medical, but with biology as the principal theme. Phenomena and activities in society are understood as "information," and their principles can be subjected to information analyses and knowledge processing. Those have been developed in computer science. Until now, these two fields have developed independently of one another, and mutual understanding between the two was an impediment to their working together in order to solve problems. However, in order to open up the next generation of health sciences, there is a need for the two disciplines to work in collaboration through flexible ideas, and to advance research and development.

Against this background, at the Education Academy of Computational Life Sciences, in close collaboration with faculty members from the School of Life Science and Technology and the School of Computing, we have set up an interdisciplinary education program that covers a broad range of disciplines. This program aims to train Γ (gamma)-type specialists who have a deep expertise in either life sciences or computer science and sub-specialist knowledge and experience in the other field, and who can contribute to the creation of new value crossing the limits of both.



A deep expertise in one main field with additional knowledge and experience in a secondary specialty, represented by the shape of the Greek letter Γ (gamma), defines "gamma-type specialists."

A Unique Program to Raise Leaders in Life and Health Innovation

At ACLS, we have established a unique program directed at students who wish to be active in the combined field of life sciences and computer science.

- Creative Collaboration Works**
Working in groups comprised of a mix of students from the life sciences and computer science, students leverage their specialized knowledge and work together to solve problems. Together, they deepen their understanding of each other's specialized disciplines and ways of thinking.
- Science and Technology Communication Courses**
Students give presentations, participate in debates, and do writing activities all in small classes using English. Students develop their persuasive English conversation abilities and writing skills.
- Career Path Education in collaboration with Industry, Government, and Academia**
Our master's program offers opportunities for short-term internships and real-world experience in industry. In addition, young researchers from industry are invited to tell students about the needs and ways of thinking of the industrial world.
- Overseas Internships**
In the doctoral program, students participate in an

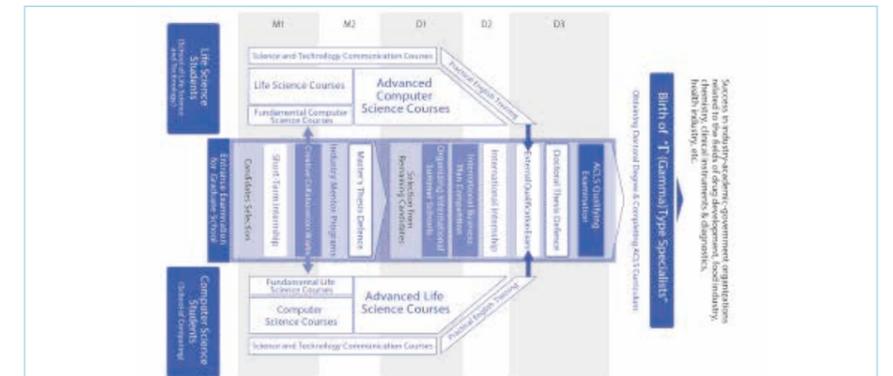


Creative Collaboration Works: Through activities in their secondary specialties, students deepen their understanding of other disciplines.

overseas internship of no less than 3 months, and develop their awareness and qualities to become international leaders.

- International Summer School**
Professors from abroad and students from overseas partner institutions are invited to join in student-centered summer schools.
Students who complete this educational program receive a certificate to that effect.
Starting with pharmaceutical and medical equipment makers, through to companies and research institutions in food, chemicals, medical examination, and health, our graduates are highly sought after to be the leaders in life and health innovation for the next generation.

Training Gamma-Type Specialists with a Unique Curriculum



Our five-year doctoral degree program trains human resources with a deep expertise in one main field and knowledge and experience in a secondary specialty. Our graduates are active in the combined field of life sciences and computer science.

Inquiries: 045-924-5827 Website: <http://www.acls.titech.ac.jp/>

DATA (FY2017)

[Number of students recruited] 30 a year
[Percentage of overseas students and mid-career students (shakajimi)] 16% - 0%
[Matriculated graduate schools, departments, etc.]
2 schools, 5 graduate majors
(School of Life Science and Technology) Life Science and Technology, Human Centered Science and Biomedical Engineering
(School of Computing) Mathematical and Computing Science, Computer Science, Artificial Intelligence

[Number of program graduates (including anticipated number)] 3 (FY 2014), 6 (FY 2015), 6 (FY 2016), 9 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 8 to universities, 12 to private companies, 2 to public research institutes, 1 to start-up business

[Collaborating universities in Japan and overseas] 10 universities
Yale University / University of California, Los Angeles / University of Cambridge / Harvard University / University of Paris / Imperial College London / Purdue University / University of Oxford / Cornell University / Nanyang Technological University

[Collaborating organizations] 23 companies
Smart Healthcare Lab / Amine Pharma Research Institute / Modulus Discovery / MVP / Chitose Laboratory / LISIT / Alexion Pharma / Clarivate Analytics (Japan) / Nissin Chemical Industries / GeneDesign / Olympus / OMRON HEALTHCARE / Leave a Nest / Astellas Pharma / Genequest / TODAI TLO / LINE / Bioedit / Japan Bioindustry Association / Central Institute for Experimental Animals / The Japan Institute for Educational Measurement / Recruit Career / IMSBIO

Interdisciplinary Program for Biomedical Sciences (IPBS)



This program aims to train next-generation leaders who have a holistic understanding of biological regulation systems, who can advance unified research in life science, who can succeed globally in industry, academia, and government, and who can bring to reality new cures to diseases which are difficult to treat.

[Contents of Diploma]

Completion of "Interdisciplinary Program for Biomedical Sciences" is noted on doctoral diplomas.

Educating Global Leaders in Next Generation Life Sciences

Osaka University's track record in life science research includes many successes, including the development of treatment methods for immune disorders. However, there are still many diseases for which no cure exists. In this program, in order to overcome difficult diseases, our goal is to elucidate students on the points of failure of biological regulation systems, through a holistic understanding of these systems. In particular, we have established a new education system that fuses together other academic disciplines, and we wish to develop internationally-minded human resources who can treat difficult diseases.

An Interdisciplinary Program and an International Environment

Graduate students come from the Graduate School of Science, from the Graduate School of Engineering, from the Graduate School of pharmaceutical sciences, from the Graduate School of Frontier Biosciences, and from the Graduate School of Medicine. Instructors gather from the same five Graduate Schools, as well as from the Graduate School of Dentistry and from the world of business. Altogether, a thoroughly interdisciplinary education and research system has been established. As part of the second-year curriculum interdisciplinary practice course, graduate students spend one month working at a laboratory working outside of their expertise, learning the latest topics, research methods, and experimental methods of that field. In addition, we have established

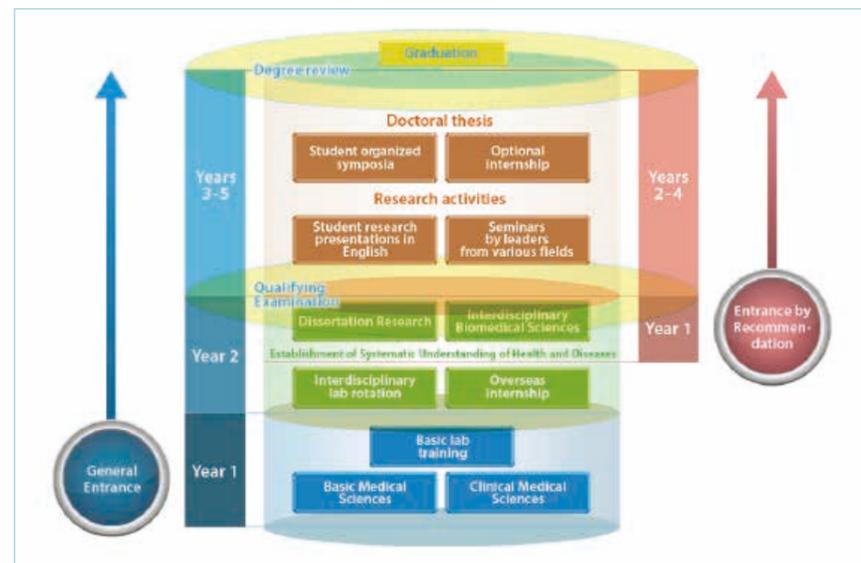
a creative education research activities expenses assistance system wherein students who complete their Qualifying Examinations draft a research proposal as lead researcher and apply to have their research funded. From these applications, outstanding plans that do a good job of unifying different fields are selected, and receive assistance toward this doctoral research. The program is thoroughly international. Foreign students are actively taken in, and the curriculum is conducted in English starting from the second year. Through their second-year international internship, students can interact with people on-site to polish their English skills and become more internationalized. For example, students can participate in a four-week science-English seminar at the Middlebury Institute of International Studies at Monterey in California, USA. Other possibilities include spending one to two months as a member of research institutions such as the Karolinska Institute in Stockholm, Sweden, at



A workshop at one of the regularly-held research progress meetings.

the University of Groningen in the Netherlands, or at the University of Turku in Finland. Students can learn about experimental methods, and participate in journal clubs and summer schools.

IPBS Program Overview



Students who have completed a four-year degree must complete a five-year master's and doctoral program. Foreign exchange students and students who have completed a six-year degree enter the program as second-year students and must complete the final four years of the program.



Photo of the annual retreat that forms a part of the curriculum (2017).

Inquiries: 06-6210-8230 Website: <http://www.stn.osaka-u.ac.jp/>

DATA (FY2017)

[Number of students recruited] 12 a year (FY 2012), 20 a year (FY 2013-2017)
 [Percentage of overseas students and mid-career students (shakaijin)] 30% · 0%
 [Matriculated graduate schools, departments, etc.] 6 graduate schools, 12 departments (Graduate School of Medicine) Medicine, Medical Science, Health Science (Graduate School of Frontier Biosciences) Frontier Biosciences (Graduate School of Engineering) Applied Chemistry, Advanced Science and Biotechnology, Sustainable Energy and Environmental Engineering, Management of Industry and Technology

(Graduate School of Pharmaceutical Sciences) Advanced Pharmacoscience, Medical Pharmacy (Graduate School of Science) Biological Sciences (Graduate School of Dentistry) Dentistry [Collaborating universities in Japan and overseas] 9 universities Mahidol University / National Taiwan University / University of Groningen / Middlebury Institute of International Studies at Monterey / Shanghai Jiao Tong University / Pohang University of Science and Technology / Karolinska Institutet / University of Turku / Hokkaido University

[Collaborating organizations] 12 companies, 3 public research institutes Chugai Pharmaceutical Co., Ltd. / Mitsubishi Tanabe Pharma Corporation / Daiichi Sankyo Company, Ltd. / Shionogi & CO., Ltd. / Terumo Corporation / Panasonic Corporation / GE Healthcare Japan Corporation / Takeda Pharmaceutical Company Ltd. / Bayer Yakuhin, Ltd. / Eli Lilly and Company / Kaneka Corporation / Lion Corporation / National Institute of Advanced Industrial Science and Technology / National Institutes of Biomedical Innovation, Health and Nutrition / Translational Health Science and Technology Institute, India

[Number of program graduates (including anticipated number)] 9 (FY 2016), 10 (FY 2017)
 [Main destinations of program graduates (including anticipated destinations)] 7 to universities, 8 to private companies, 2 to public research institutes, 1 to medical doctor

Training Program of Leaders for Integrated Medical System for Fruitful Healthy-Longevity Society



Through a wide variety of educational programs in medicine, engineering, and pharmacology in industrial and public fields, we aim to foster leaders for integrated medical systems who are able to respond to the needs of Japan's advancing super-aging society and who can understand and implement international standardization.

[Contents of Diploma]

Completion of "Training program of leaders for integrated medical system for fruitful healthy-longevity society" is noted on a doctoral diploma.

Professionals who can lead the healthcare industry in a super-aging society

Japan, facing population aging at an unprecedented rate, needs to build social systems based on medicine and engineering, that will enable the elderly to live independently and continue to participate in society. These systems are needed across a wide range of areas, including housing, transport, healthcare and nursing. In such a super-aging society, leaders who will act as a driving force for new medical industries forward must possess the ability to understand the values and lifestyles of the elderly, aged-care medicine, medical ethics, and a broad range of social circumstances. They must also possess comprehensive perspectives regarding the integration of information and presentation of proposals in industry and as well as in public/international organizations, and the ability to follow through on those proposals.

Cultivating leaders in comprehensive healthcare development

This program provides students from the fields of science and technology, pharmacology, and biological sciences with a medical and healthcare education equivalent to that of a medical school graduate, and provides medical students with education in science and engineering and pharmacology. The aim of this is to cultivate medico-engineering professionals who truly understand medicine and healthcare, and leaders who can extend their medical

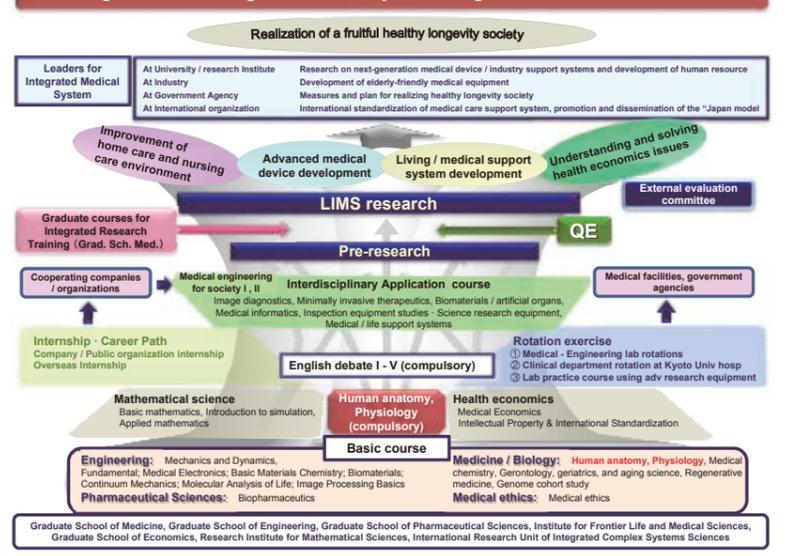
knowledge into many other fields. It could be said that an ideal curriculum to transform this idea into reality has been implemented. Some of the key features of the program are the human anatomy lectures and practical courses (participating in the human anatomy practical course for medical students) and the physiology lectures that students take in the first year of the course. These classes are an invaluable opportunity for the students. In addition, through hands-on experience in medical and support care settings and the study of medical ethics, students will cultivate a sense of how to develop "elderly-friendly" devices and systems that will not place a burden on their users. Students will also become well versed not only in medical and engineering knowledge, but also in healthcare economics and licensing systems, thus acquiring the ability to predict industry and market trends of devices and systems. Students will be trained in international standardization and develop excellent communication



Students participating in a practical course at the medical records office, Kyoto University Hospital.

skills in English, and this course will cultivate professionals who can play active roles in international decision-making settings. Debate-style classes led by native English speakers as lecturers are planned for the entire duration of the course to improve the students' English language skills.

"Training Leaders for Integrated Medical System" Program Structure and The Outcome



	1st year	2nd year	3rd year	4th year	5th year
5 year Doctoral course					
4 year Doctoral course					
LIMS research	Pre-research	Pre-research	Pre-research	Pre-research	Pre-research
English lecture	English debate I-V	English debate I-V	English debate I-V	English debate I-V	English debate I-V
Exercise Practice	Lab practice course using adv research equipment	Special Training	Special Training	Special Training	Special Training
Lecture	Mathematical science for health economics	Mathematical science for health economics	Mathematical science for health economics	Mathematical science for health economics	Mathematical science for health economics

Curriculum outline

Program course and set goals

DATA (FY2018)

[Number of students recruited] 20 a year (FY 2013-2015), 12 a year (FY 2016-2018)
 [Percentage of overseas students and mid-career students (shakaijin)] 31% · 22%
 [Matriculated graduate schools, departments, etc.] 3 graduate schools, 15 departments (Graduate School of Medicine) Medical Science, Medical Science Major, Human Health Science Major (Graduate School of Engineering) Mechanical Engineering and Science, Micro-engineering, Material Chemistry, Biomolecular

Functional Chemistry, Polymer Chemistry, Synthetic Chemistry and Biological Chemistry, Chemical Engineering, Nuclear Engineering, Energy and Hydrocarbon Chemistry (Graduate School of Pharmaceutical Sciences) Pharmaceutical Science, Pharmaceutical Science Major, Bioinformatics and Chemical Genomics

[Number of program graduates (including anticipated number)] 1 (FY 2017), 8 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 7 to private companies, 2 to public research institutes

Inquiries: 075-753-9334 Website: <http://www.lims.kyoto-u.ac.jp/>

Kumamoto University

HIGO (Health life science: Interdisciplinary and Glocal Oriented) Program



The HIGO Program fosters promising professionals who are equipped with expert knowledge in the field of Health Life Science, which is based on medicine and pharmacology, as well as the ability to understand the social needs of Kyushu and Asia, link the local region to the world, and solve a variety of problems from a "glocal" (global + local) perspective.

[Contents of Diploma]

Degrees conferred: PhD degrees in Health Life Science. Completion of "HIGO Program, Health life science, Interdisciplinary and Glocal Oriented" is noted on the diploma.

For next-generation leaders in health life science

In recent years, Asia has achieved remarkable economic growth and interests in healthcare has increased. Many Japanese companies are moving into Asia and economic and personal exchanges are expected to increase even further in the future. For this reason, society needs people who not only have medical and pharmaceutical knowledge but also are work-ready and able to cooperate with people in Asian countries. This program fosters promising professionals who are equipped with expert knowledge in the field of Health Life Science, which is based on medicine and pharmacology, as well as the ability to understand the social needs of Kyushu and Asia, link the local region to the world, and solve a variety of problems from a "glocal" (global + local) perspective.

The image and quality of the professionals cultivated by this program is as follows.

- Leaders who will promote companies' advances into Asia
- Leaders who will be involved in medical administration in Japan and overseas
- Leaders in education and research who will be active internationally

For educational programs that will grow together with the students

1. Multi-Mentor System

- Multiple mentors will work to improve the program by grasping the students' needs through interviews. A "mid-term interview" will take place in the second year of the doctoral program to confirm the students' progress on the curriculum and their research, and to discuss their career options.



Nepal Internship at JICA Nepal Office (Aug. 2017)

2. A space for working hard together with other students

- The HIGO Room is available for discussions among students and for mentoring in English and Japanese with mentors of global backgrounds.
- Students themselves lead social benefit activities conducted in partnership with industry and government such as the ongoing awareness-raising campaign to increase rate of cervical cancer screenings.

A curriculum that will help students to realize their own future vision

1. Health Life Science

- Students will take specialist subjects in medicine and pharmacology (lectures, lab rotations, and cutting-edge projects/seminars) to acquire a broad knowledge of health life science.

2. Social and Cultural Sciences

- The aim is to foster people with an interdisciplinary humanities and sciences background, and approach who are able to understand the needs of Kyushu and Asia, in addition to their expert knowledge in the science domain.
- Students acquire basic knowledge in the Principles of Social and Cultural Sciences. In the Career Vision Development Course, they choose multiple specialized subjects to study that suit their own interests and future vision.



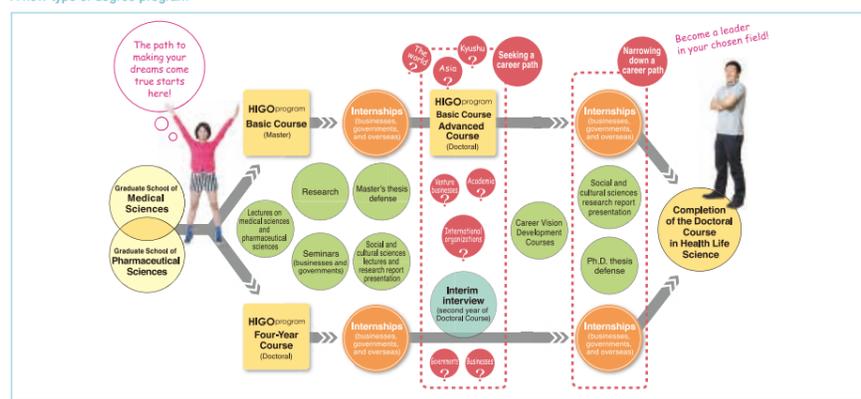
HIGO Program Internship and Research Activities Report Presentations (Feb. 2017)

- Students will present reports and presentations on their outcomes in social and cultural sciences, before submitting a research thesis in order to obtain a Master's or Doctoral degree.

3. Business/Government Seminar and Internship

- Through seminars presented by corporate and government leaders from Japan and abroad, students will learn the qualities of a leader and about potential career paths.
- Students will undergo internships to foster practical skills and a greater sense of professionalism through experiences in the field of the real world and to clarify their own future vision.

A new type of degree program



Cultivating glocal leaders who, while equipped with a high level of expert knowledge and research capabilities, are able to understand the needs of the local region and Asia and solve a variety of problems.

Inquiries: 096-373-5785 Website: <http://higoprogram.jp/en/>

DATA (FY2018)

[Number of students recruited] 20 a year (FY 2012-2015), 18 a year (FY 2016), 12 a year (FY 2017), 12 a year (FY 2018)
 [Percentage of overseas students and mid-career students (shakajimi)] 50% · 30%
 [Matriculated graduate schools, departments, etc.] 2 graduate schools, 5 majors
 (Graduate School of Medical Sciences) Medical Sciences (Master's Course), Medicine (Doctoral Course)
 (Graduate School of Pharmaceutical Sciences) Pharmaceutical and Life Sciences (Master's Course), Pharmaceutical and Life Sciences (Doctoral Course), Clinical Pharmaceutical Sciences (Doctoral Course)

[Collaborating universities in Japan and overseas] 14 universities
 Kathmandu University / Tribhuvan University / The University of Dhaka / Jahangirnagar University / Hanoi School of Public Health / The University of Hong Kong / University of Vienna / The George Washington University / The University of New Mexico / The University of Texas / Tohoku University / Tokyo Institute of Technology / Shizuoka University of Art and Culture / Fukushima Medical University

[Collaborating organizations] 10 companies, 1 public research institute, 5 local public bodies
 DOJINDO LABORATORIES / The Kumamoto Daily Newspaper / Kawasumi Laboratories / Shin Nippon Biomedical Laboratories / KKT, Kumamoto Kenmin Television / The Kumamoto Chamber of Commerce & Industry / Kumamoto Association of Corporate Executives / Ernst & Young ShinNihon LLC / Leave a Nest / Nihon Unisys, Ltd. / National Institute for Minamata Disease / Kumamoto Prefectural Government / Kumamoto City / Kamiyamakusa City / Minamata City / Sado City

[Number of program graduates (including anticipated number)] 4 (FY 2015), 3 (FY 2016), 13 (FY 2017), 19 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 17 to universities, 9 to private companies, 4 to public research institutes, 1 to medical doctor, 1 to start-up business

The University of Tokyo

Materials Education program for the future leaders in Research, Industry and Technology (MERIT)



The aim of the MERIT program is to produce people who will use material science to act as leaders in solving the problems of human society in a broad range of areas of industry, academia and government. They will be equipped with high level expertise and the ability to adopt a globally attuned perspective that allows them to consider a broad range of science and technology.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Engineering, Science, or PhD. Completion of "Materials Education program for the future leaders in Research, Industry, and Technology" is noted on the diploma.

Producing the leaders of the next generation through the concerted cultivation of panoramic perspectives and specialist expertise.

Human society today faces a major turning point. Energy, resources, and environmental issues are increasingly serious and the social structure, which has until now pursued growth and expansion, is being pressed to change. In addition to reducing the burden on the environment and creating a society that can achieve sustainable growth with limited resources and energy, building an international community in which a fair and functional global division of labor is possible is a major challenge. Material science, a comprehensive scientific domain consisting of physics, chemistry, materials science and electrical engineering, will play a central role in solving these problems. As society undergoes such rapid change, solving the above global challenges will require a great deal of innovation, and, while keeping firm hold of a high degree of specialized expertise, "integrated material science" that covers everything from the basics to application is essential. Against this backdrop, the MERIT program was launched in 2012, bringing together the 9 departments dealing in material science at the University of Tokyo. It offers an integrated Master's and Doctoral program and aims to produce people who will act as leaders in solving the problems of society in a broad range of areas of industry, academic and government.



In Colloquium (1), four students give research presentations (in English) in each class, after which the students are divided into several groups and detailed questions are asked and answered across disciplinary boundaries.

Research training equipped with a productive coursework and practice

[Coursework]

Coursework will extend across the fields of physics, chemistry, materials science, and electronic engineering. Students will acquire panoramic perspectives through broad-ranging lectures and a double mentor system provided by instructors from other fields. Further, special lectures will be given by industry leaders, from whom students will acquire knowledge about organizational theory, leadership theory, and management.

[From Colloquiums and Self-directed Camp to Self-directed Joint Research]

All MERIT students from the different fields participate in the Colloquiums and Self-directed Camp. In Colloquium (1), the students deliver research presentations in English twice a month. Through lively Q&A sessions, students deepen their understanding of research in different fields. These sessions also provide an excellent opportunity for the students to take a fresh look at the expertise they themselves are pursuing. In Colloquium (2), students are divided into small teams to conduct broad-ranging research surveys. This is regarded as a problem-solving case study. The Self-directed Camp is planned and run by the students themselves. Through this, they gain first-hand experience of the differences in research and



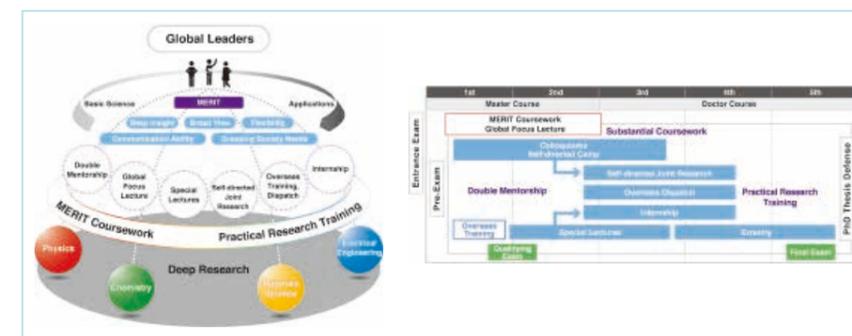
Self-directed Camp, at which 1st and 2nd Year students from different fields gather together and interact. The students plan the entire camp, from selecting the venue to the content of the camp.

attitudes in different fields. Through the Colloquiums and Camp, students seek out the seeds of joint research that covers different fields and develop that into Self-directed Joint Research.

[Overseas Dispatch and Internship]

An important activity that students undertake outside the research lab is to go overseas. There are many opportunities for the students to travel overseas, including overseas training in 1st year, long-term overseas dispatch in 3rd and 4th year, and the errantry program undertaken in 4th and 5th year. These experiences will foster an advanced globally attuned perspective in the students. Domestic and overseas internships offer a more practical opportunity for research training.

Conceptual diagram for leaders training (left) and educational schedule (right) in the MERIT



DATA (FY2018)

[Number of students recruited] 40 a year
 [Percentage of overseas students and mid-career students (shakajimi)] 9% · 2%
 [Matriculated graduate schools, departments, etc.] 3 graduate schools, 9 departments
 (Graduate School of Engineering) Applied Physics, Electrical Engineering and Information Systems, Materials Engineering, Applied Chemistry, Chemical System Engineering, Chemistry and Biotechnology
 (Graduate School of Science) Physics, Chemistry

(Graduate School of Frontier Sciences) Advanced Materials Science

[Number of program graduates (including anticipated number)] 26 (FY 2015), 31 (FY 2016), 35 (FY 2017), 31 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 35 to universities, 61 to private companies, 20 to public research institutes, 5 to governmental agencies, 2 to others

Hokkaido University

Ambitious Leader's Program Fostering Future Leaders to Open New Frontiers in Materials Science



This program aims to nurture and send out into the world PhD professionals of a high caliber who will boldly take on the difficult challenges confronting modern society and become new-generation global leaders, opening up new frontiers with a strong resolve. Students will develop specialist expertise in materials science and the ability to view various domains in an interdisciplinary, panoramic way.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Chemical Science and Engineering, Life Science, Environmental Materials Science, Science, or Engineering. Completion of "Fostering Future Leaders to Open New Frontiers in Materials Science" is noted on the diploma.

Nurturing Ambitious Leaders with practical problem-solving skills

In the 21st century, humanity faces major challenges unlike anything it has experienced in the past. We believe that the pursuit of materials science to an even higher dimension is the key to solving the difficult challenges confronting modern society, and our aim is to nurture and send out into the world PhD professionals of a high caliber who will boldly take on those challenges and become new-generation global leaders, opening up new frontiers with a strong resolve.

To develop the skills required of new-generation leaders, namely robust professional abilities, comprehensive perspectives, pioneering spirit across new frontiers capabilities, globalized practical skills, and introspective intelligence, the program's students will engage in curricula and events consisting of (1) cross-disciplinary interaction utilizing mathematical sciences, (2) enhancement of specialist expertise, and (3) global capacity and industry-academic partnerships. The degree to which students in the program have achieved these aims will be stringently checked in two rounds of qualifying examination (QE) – the first in the summer of the 2nd year of the Master's course and the second in the winter of the 2nd year of the Doctoral course. In the final year, the students will choose between Administration of an independent laboratory, Overseas Collaborative Research, Industry Collaborative Research, and Cutting-Edge Collaborative Research and finalize their research in an independent environment.

Through a comprehensive five-year program, the students will develop a high standard of specialist expertise in materials science and acquire the ability to view



3rd National Student Conference for Programs for Leading Graduate Schools, which students of the program planned and organized independently.

various domains from interdisciplinary, comprehensive perspectives. This will cultivate Ambitious Leaders who have the capacity to boldly take on and solve the difficult challenges confronting modern society.

New-generation PhDs who will open up new frontiers in materials science through advanced integrated education

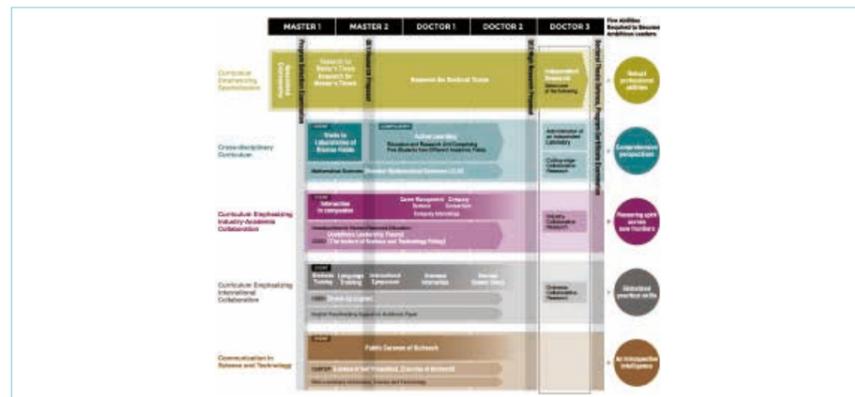
Through collaborations between the Graduate School of Chemical Sciences and Engineering and other graduate schools, students in the program first undertake education and research in a wide range of specialist fields, including materials engineering and life science. The program also has its own compulsory subjects in mathematical science, an academic field that seeks to discover the underlying principals of all phenomena, which will enable students to develop comprehensive perspectives that transcend their specialized field. In addition, students learn how science and technology can effectively interact with society through activities that focus on communication in science and technology.

Through cooperation with overseas partner universities, the program features overseas training, summer camps,



Overseas training at Queen's University in Canada, where students acquired practical English language skills and achieved outcomes in collaborative research.

and symposia to enhance student's ability to work globally. Through cooperation with Japanese companies, program participants engage in corporate internships and consortiums to develop a pioneering spirit across new frontiers. Further, the program incorporates small-group cross-disciplinary interaction, in which groups of five students, all from different specialist fields, engage in training, discussion, joint research and other activities with the aim of solving difficult challenges confronting modern society. Using the latest advances in interdisciplinary education, the Ambitious Leaders Program is nurturing new-generation PhDs who will open up new frontiers in materials science.



Cultivating Ambitious Leaders equipped with robust professional abilities, comprehensive perspectives, pioneering spirit across new frontiers, globalized practical skills, and an introspective intelligence

Inquiries: 011-706-3359/3360 Website: <https://ambitious-lp.sci.hokudai.ac.jp/>

DATA (FY2018)

[Number of students recruited] 20 a year / 2013-17, 10 a year / 2018

[Percentage of overseas students and mid-career students (shakajin)] 15% · 1%

[Matriculated graduate schools, departments, etc.]

5 graduate schools, 6 departments
(Graduate School of Chemical Sciences and Engineering)
Chemical Sciences and Engineering
(Graduate School of Life Science) Life Science, Soft Matter
(Graduate School of Science) Mathematics

[Number of program graduates (including anticipated number)] 9 (FY 2017), 13 (FY 2018)

[Main destinations of program graduates (including anticipated destinations)] 4 to universities, 18 to private companies

(Graduate School of Environmental Materials Science)
Environmental Materials Science

(Graduate School of Engineering) Quantum Science

[Collaborating universities in Japan and overseas]

10 universities, 1 inter-university research institute
Peking University / Tsinghua University / Nanjing University / Seoul National University / National Taiwan University / University of Strasbourg / University of Manchester / University of California, Berkeley / Delft University of Technology / ETH Zürich, ETHZ / KEK Institute of Materials Structure Science

[Collaborating organizations]

18 companies, 1 public research institute
HITACHI, Ltd. / TEIJIN LIMITED. / FUJI ELECTRIC Co., Ltd. / Bridgestone Corporation / JFE Steel Corporation / NIPPON STEEL & SUMITOMO METAL CORPORATION / SHOWA DENKO K.K. / ADEKA / KYOWA HAKKO BIO CO., LTD. / TOSHIBA Corporation / ASahi KASEI CORPORATION / Sumitomo Chemical Co., Ltd. / DIC / AGC Inc. / NIPPON SHOKUBAI CO., LTD. / Nippon Light Metal Co., Ltd. / Otsuka Pharmaceutical Co., Ltd. / Johnson Matthey / National Institute for Materials Science (NIMS)

Tohoku University

Interdepartmental Doctoral Degree Program for Multi-dimensional Materials Science Leaders



This program will cultivate human resources to be worthy leaders in the future industry in the field of materials, where new functions, processes, devices, and features are being sought on a daily basis. These leaders will be able to understand materials and respond flexibly to the needs of society with their specialist expertise, as well as with multidimensional perspectives and approaches.

[Contents of Diploma]

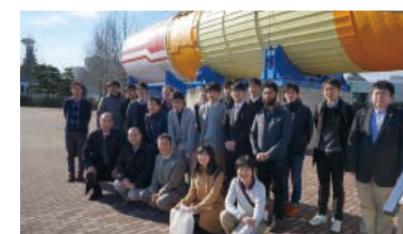
Completion of "Interdepartmental Doctoral Degree Program for Multi-dimensional Materials Science Leaders" is noted on doctoral diplomas.

Cultivating PhD professionals with "multidimensional" ideas

New materials are essential to the technological innovations that support our lives, such as environmentally-friendly vehicles and lightweight smartphones. In the study of materials, connecting the new ideas that are generated in the research lab to a better future for us all requires human resources who have the ability to understand materials with multidimensional perspectives and approaches, constantly identify situations from comprehensive perspectives, and respond swiftly and appropriately to the needs of society. As used in this Program for Multidimensional Materials Science Leaders, the term "multidimensional" refers to the extensive, panoramic perception of materials through multiple dimensions such as their functions, characteristics, processes, environmental compatibility, economics, and safety. The program cultivates leaders in materials science who possess firm basic knowledge and a breadth of experience in research and who are able to respond to the field of materials dynamically with broad perspectives and play an active role in industry.

A multidimensional educational curriculum in a collaborative framework between industry and academia

In order to train such people who have multidimensional perspective, the program delivers an educational ground that takes advantage of Tohoku University's experts in the field of materials science and industry platforms for collaboration with industry and government. Our partner



Support to extracurricular activities of the students

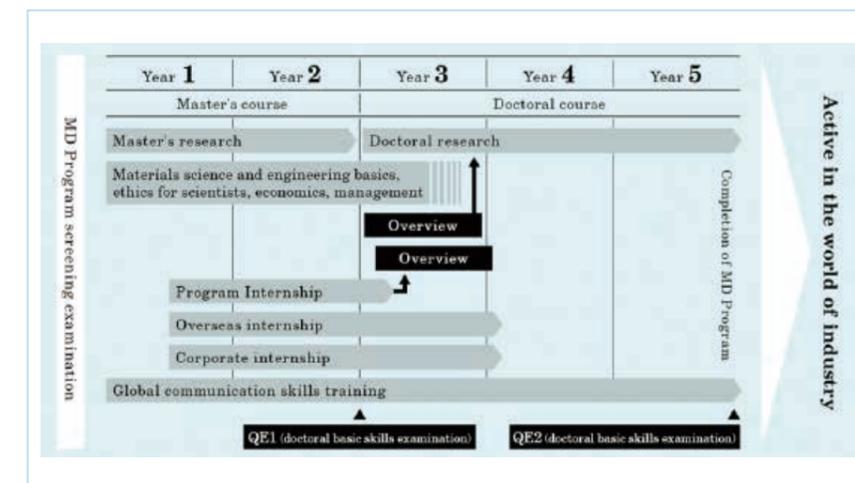
companies not only provide internships for program participants, but they also send current employees to act as instructors and participate in the selection examinations and screenings. In this way, they have a major role to play in ensuring the quality of the program's graduates. Internship and Overview are core elements of the educational curriculum. All students in the program will undertake three types of internship—corporate, overseas, and an internal program—for three months each, so they can experience different research cultures other than that of their own research lab. This will lead to the development of human resources who are not confined to the styles and approaches of a single lab and who can look at problems from a multidimensional perspective. In the Overview process, students will choose one topic each from their internal program internship and doctoral research and present those topics, adding observations made from multidimensional perspectives. This will allow students to acquire broad-ranging knowledge and also hone their research skills, comprehensive perspectives, and creativity.

Students' English language abilities, which are essential to a global career, will also be strengthened in the program.



Practical Training for global communication skill

The compulsory subject, "Global Communication Skills Training" will nurture practical English language skills through role-playing and discussions, led by full-time English native-speaker instructors. In addition, English language teaching materials tailored to materials science have been developed to support students in improving their language abilities in their specialist fields. In this way, Tohoku University will send out into the world PhD professionals who are worthy of participating actively in the global arena.



Unique educational curriculum for the MD Program

DATA (FY2018)

[Number of students recruited]

25 a year (FY 2014-2016), 10 a year (FY 2017-2018)

[Percentage of overseas students and mid-career students (shakajin)] 28% · 0%

[Matriculated graduate schools, departments, etc.]

6 graduate schools, 16 departments
(Graduate school of Engineering) Metallurgy, Materials Science, Material Processing, Applied Chemistry, Mechanical Systems Engineering, Electronic Engineering, Applied Physics
(Graduate school of Science) Physics, Chemistry,

[Number of program graduates (including anticipated number)] 6 (FY 2017), 12 (FY 2018)

[Main destinations of program graduates (including anticipated destinations)] 5 to universities, 11 to private companies, 1 to public research institute

Mathematics, Astronomy

(Graduate school of Information Sciences) System Information Sciences

(Graduate school of Environmental Studies) Frontier Science for Advanced Environment, Environmental Studies for Advanced Society

(Graduate school of Arts and Letters) Humane Studies

(Graduate school of Pharmaceutical Sciences) Molecular Pharmaceutical Science

[Collaborating universities in Japan and overseas]

1 inter-university research institute

Institute of Materials Structure Science, High Energy Accelerator Research Organization

[Collaborating organizations]

1 company, 1 public research institute

NTT Basic Research Laboratories / National Institute for Materials Science

Inquiries: 022-795-4946 Website: <http://m-dimension.tohoku.ac.jp/>

Osaka Prefecture University*

*Jointly implementing university: Osaka City University

Graduate Course for System Inspired Leaders in Material Science (SiMS)



This program aims to cultivate system-inspired leaders in material science who can become industry leaders, equipped with "system thinking (the ability to view complex problems from a comprehensive, panoramic perspective)", supported by "design thinking (the ability to create new ideas)", and "management capabilities (ability to convert systems and ideas into tangible forms)".

[Contents of Diploma]

Degrees conferred: <Osaka Prefecture University> PhD degrees in either Engineering, Applied Life Sciences, Environmental Sciences and Technology, or Science, <Osaka City University> PhD degree in Engineering. Completion of "graduate course for System-inspired Leaders in Material Science" is noted on the diploma.

Industry-leading PhDs who transcend hierarchies with "system thinking"

In recent years, new research paradigms are emerging that cannot be accommodated by the traditional hierarchical technological frameworks. The promotion of globally competitive industries and the realization of safe, secure, and sustainable societies requires the generation and promotion of inter-hierarchical research that is not confined to any specific technological hierarchy. To achieve this, there is a need for researchers who do not just modify or improve existing "mono" (material things) and "kotozukuri" (value creation), but who can use the concept of "kotozukuri" to envisage research and development strategies for generating new "koto" that will fundamentally transform industry and lifestyles. This program cultivates system-inspired leaders in material science who will propel industry forward, based on system thinking (the ability to view complex problems from a comprehensive, panoramic perspective), with the ability to design new ideas and the management capabilities to convert systems and ideas into tangible forms.

Discussing ideas with diverse people in diverse venues

To cultivate people who can create concepts for "new kotozukuri," the SiMS program provides opportunities



Through their studies in the SiMS program, students voluntarily form teams and engage in collaborative research aimed at "kotozukuri"

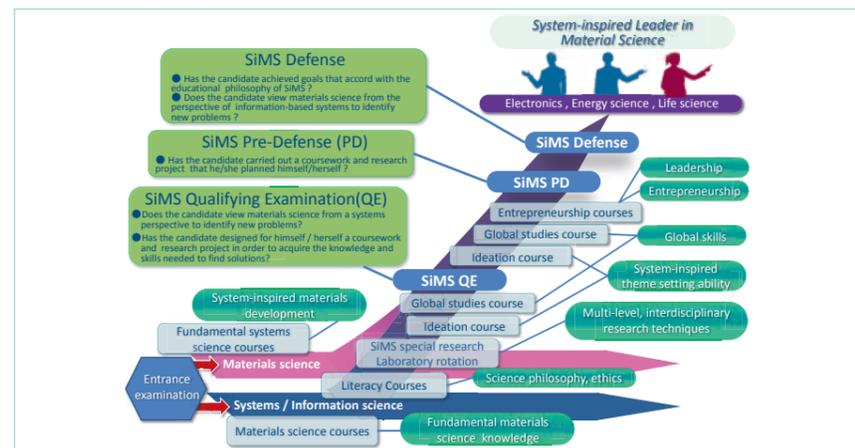
and environments for program participants to pursue research, while discussing their ideas with a diverse range of people in diverse venues. A major feature of SiMS is that students design their own coursework under the guidance of a mentor from a corporate background, with the aim of discovering and solving various problems in society and industry. The SiMS curriculum has five key features. (1) In the Interdisciplinary class, based on the development of "new kotozukuri" concepts, students will learn the basics of different specializations, with material science students learning more about systems engineering and vice versa. Students will also spend at least three months in a research lab in a different field or specialization from their own, either in the university or off campus, where they will acquire a broad range of perspectives and knowledge. (2) In the Literacy class, students not only learn about the problems surrounding the environment and sustainability in the current age, but also refine the qualities needed for establishing and solving challenges themselves through dialogues with leaders in the real world. (3) In the Ideation class, through thorough dialogue with researchers, entrepreneurs and industry leaders, students will develop "system thinking",



Through dialogue with instructors with abundant domestic and overseas experience, students develop the sensibilities of a global leader

"design thinking", and "management capabilities", and learn ways of building ideas through camps and other practical exercises. (4) In the Global class, students will hone their English communication skills through practical English exercises and dialogue with university lectures from overseas. They will also experience three months' study abroad. (5) In the Entrepreneurship class, with the full participation of former company executives and off-campus advisors, students will develop an entrepreneurial mindset and sensibility, including through long-term internships and other practice.

SiMS curriculum conceptual diagram



A curriculum has been designed that cultivates comprehensive perspectives, design capabilities, breakthrough abilities, and global communication skills to develop industry leaders

Inquiries: 072-254-7567 Website: <http://sims-program.osakafu-u.ac.jp/>

DATA (FY2018)

[Number of students recruited] 20 a year (FY 2014-2016), 10 a year (FY 2017-2018)
 [Percentage of overseas students and mid-career students (shakaijin)] 8% - 0%
 [Matriculated graduate schools, departments, etc.]
 <Osaka Prefecture University> 4 graduate schools, 13 divisions;
 <Osaka City University> 1 graduate school, 4 divisions
 Osaka Prefecture University Graduate School
 <Graduate School of Engineering> Mechanical Engineering, Aerospace and Marine-System Engineering, Electronics, Mathematics, and Physics, Electrical Engineering and Information Science, Materials Science and Engineering, Quantum and Radiation Engineering
 <Graduate School of Life and Environmental Sciences> Applied Life

Sciences, Environmental Sciences and Technology
 <Graduate School of Science> Mathematical Sciences, Physical Science, Chemistry, Biological Science
 <Graduate School of Humanities and Sustainable System Sciences> Sustainable System Sciences
 Osaka City University Graduate School
 <Graduate School of Engineering> Mechanical and Physical Engineering, Physical Electronics and Informatics, Applied Chemistry and Bioengineering, Urban Engineering
 [Collaborating universities in Japan and overseas] 11 universities
 Brown University / University of Georgia / Saybrook University / Pierre and Marie Curie University - Paris 6 / Aalborg University / East China University of Science and Technology / Kyung Hee University / Kumoh

National Institute of Technology / Thai-Nichi Institute of Technology / National University of Tainan / Royal University of Phnom Penh
 [Collaborating organizations]
 12 companies, 1 public research institute
 Panasonic Corporation / ROHM Co., Ltd. / Sumitomo Electric Industries, Ltd. / Murata Manufacturing Co., Ltd. / Hitachi, Ltd. / TOSHIBA DIGITAL SOLUTIONS CORPORATION / KONICA MINOLTA, INC. / Proassist, Ltd. / NITTOBO MEDICAL CO., LTD. / Hitachi Asia Ltd. / Inter-university Micro Electronics Center / Anabas Inc / National Institute of Advanced Industrial Science and Technology

[Number of program graduates (including anticipated number)] 7 (FY 2017), 12 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 4 to universities, 14 to private companies, 1 to public research institute

The University of Tokyo

Graduate Program for Social ICT Global Creative Leaders



Combining world-class expertise and the freedom offered by an interdisciplinary approach, our program aims to bring together a diverse, international team of scholars to generate strikingly innovative value and tackle the problems facing society.

[Contents of Diploma]

Completion of "Graduate Program for Social ICT Global Creative Leaders" is noted on doctoral diplomas.

Paving the way for social reform with professional expertise based on advanced ICT as a core

Information and communication technology (ICT) has fostered connections between people and things all over the world at a breathtaking pace, and in doing so has brought about significant changes throughout society. These developments provide the opportunity to create new solutions for social issues, as well as improve anti-disaster and anti-terrorism measures, offer new services and businesses, increase the efficiency and quality of administrative efforts, projects, and infrastructure, and foster cultural innovation. Yet there is also the potential for unforeseen issues to arise. Societies around the world are grappling with how to implement social reforms and solve the issues they face. With the power of advanced ICT as a core, we can integrate expertise and knowledge from a number of fields engaged in these issues to create and implement the new solutions and systems. In order to achieve this, "information" and "society" must be viewed as intersecting parts of a single "system." Effecting change in societies around the world requires the abilities for utilizing a deep reservoir of expertise to craft creative analyses and designs, understand and generate values and motives, and forge a strong team that unites people from various disciplines with those directly engaged in the issues of the day. It is these kinds of "global creative leaders" (GCLs) who are in high demand by companies, public institutions, and several other organizations. This program aims to be one of the first in the world to systematically foster the growth of these GCLs.



Gaining skills out in the field through internships provided by a robust network of domestic and international partners

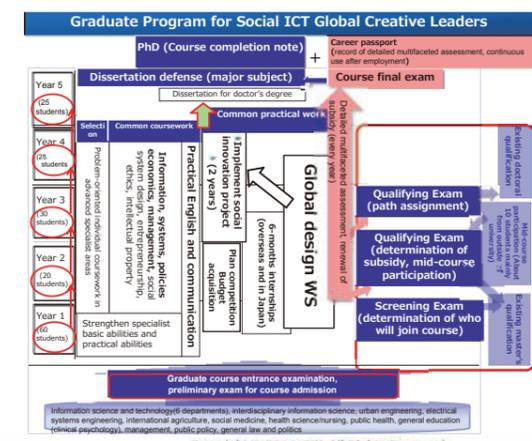
Fostering bold growth program through a unique approach

GCL candidates will be chosen from among graduate students in ICT as well as 17 fields relevant to tackling social issues. Upon reinforcing their fundamental and practical skills in their respective disciplines, all students will obtain a solid foundation in the interlinked areas of "information" and "society." Moreover, their development will be fostered through an original system that utilizes a multi-pronged approach: the "Global Design Workshop" (GDWS), in which students engage in lively discussions with people actively at work in society on even ground and create and disseminate proposals that address new issues; "Implementing Social Innovation Project," in which students take their project proposals and put them into action; and "Detailed Multifaceted Assessment," which evaluates students' abilities and achievements from their entry into the program through to their graduation. Approximately 60 students will join the first year class and, by cooperating with their peers in other fields as well as those on the front lines, cultivate the cognizance of social issues and practical expertise needed to implement social reform. 20 exceptionally talented individuals will be selected



GCL Summer Camp: A lively discussion on "Solving social issues and implementing social reform through ICT"

from among these students to continue to the second year. Starting with the second year, subsidies will be provided. Students will learn the fundamentals of what it takes to be a GCL through six months of domestic and international internships (financial assistance provided), the GDWS and practical English which are required for third- through fourth-years, common subjects dealing with leadership, and more. In the third year, about 10 actively working adults will be admitted, further amplifying the diversity and stimulation of the learning environment.



Fostering leaders in social ICT by combining the university's practical and professional expertise with leaders in the industry, government, private, and academic sectors

DATA (FY2018)

[Number of students recruited] 60 a year (admitted in 1st school year, 10 a year (admitted in 3rd school year)
 [Percentage of overseas students and mid-career students (shakaijin)] 17% - 19%
 [Matriculated graduate schools, departments, etc.]
 9 graduate schools, 17 departments
 <Graduate School of Information Science and Technology> Computer Science, Mathematical Informatics, Information Physics and Computing, Information and Communication Engineering, Machine-Informatics, Creative Informatics
 <Interfaculty Initiative in Information Studies / Graduate School of University of Information Studies> Interdisciplinary Information Studies
 <Graduate School of Engineering> Urban Engineering, Electrical Engineering and Information Systems
 <Graduate School of Medicine> Social Medicine, Health Sciences and Nursing,

School of Public Health
 <Graduate School of Agricultural and Life Sciences> Global Agricultural Sciences
 <Graduate School of Education> Integrated Educational Sciences (Department of Clinical Psychology)
 <Graduate School of Economics> Management
 <Graduate School of Public Policy> Public Policy
 <Graduate Schools for Law and Politics> Legal and Political Studies
 [Collaborating universities in Japan and overseas]
 7 universities, 1 inter-university research institute
 University of Manchester / ETH Zurich / University of California, Berkeley / Technical University of Munich / Pierre and Marie Curie University (Paris 6) / Chulalongkorn University / University of Tsukuba / Institute of Statistical Mathematics, Research Organization of Information and Systems

[Number of program graduates (including anticipated number)] 2 (FY 2016), 5 (FY 2017), 10 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 9 to universities, 4 to private companies, 1 to start-up business

Inquiries: 03-5841-8746 Website: <http://www.gcl.i.u-tokyo.ac.jp/>

[Collaborating organizations]
 12 companies, 2 public research institutes, 3 governmental agencies, 6 others
 Keidanren (Japan Business Federation) / Japan Users Association of Information Systems / Japanese Standards Association / Tokio Marine & Nichido fire Insurance Co., Ltd. / IBM Japan Ltd. / Google LLC / Microsoft Corporation / Infosys Limited / NTT DATA Corporation / NS Solutions Corporation / e-CORPORATION J.P. Ltd. / Portfolio Solutions Limited / National Institute of Science and Technology Policy / Japan International Cooperation Agency / Cabinet Secretariat / Ministry of Economy, Trade and Industry / Ministry of Internal Affairs and Communications / International Organization for Standardization / Educe Technologies / National Bioscience Database Center / DISS / Preferred Networks / Japan Digital Design

Kyoto University

Collaborative Graduate Program in Design



Learn the theory and methods behind design through our new doctoral program that fuses various disciplines, and apply the skills you obtain to broaden your perspective and cultivate your creativity.

Through this program, we foster the development of "plus-shaped people," experts who transcend the bounds of their disciplines to cooperate with others.

[Contents of Diploma]

The completion of the Collaborative Graduate Program in Design will be mentioned in the doctoral diploma. In the Graduate School of Informatics, the doctoral degree to be granted upon completion of this program is termed either "Doctor of Philosophy" or "Doctor of Informatics." In case the student is granted a Doctor of Informatics, the completion of this program will be mentioned in the diploma. (Implemented since 2016-2017 academic year)

A systematically arranged curriculum design that fosters broad perspective and creativity

The problems facing modern society are growing ever more complex, and no single discipline has all the tools necessary for solving them. Collaborative Graduate Program in Design is a new educational program that aims to harness the academic resources cultivated by Kyoto University over the years to explore these issues from the perspective of overall optimization and create solutions by "designing" systems for society. This program will help students both to learn and apply the theory and methods in order to broaden their perspectives and unleash their creativity. In doing so, it will foster the development of "plus-shaped people," experts who transcend the bounds of their disciplines to cooperate with others.

In the first two years of the graduate program, students will enroll in the General Design Courses to gain a solid foundation in the theory and methods of the multidisciplinary field. In addition, in the practical course "Field-Based Learning/Problem-Based Learning (FBL/PBL)", students from different disciplines will form teams and explore actual social issues from a variety of perspectives to figure out how to find solutions.



Implementation of bipedal robot based on the FBL/PBL theme "Robots and Social Design"

will tackle a complex issue under industry-government-academia collaboration and present the culmination of their interdisciplinary studies and activities through their doctoral research.

Cultivating Design Studies talent through industry-government-academia collaboration

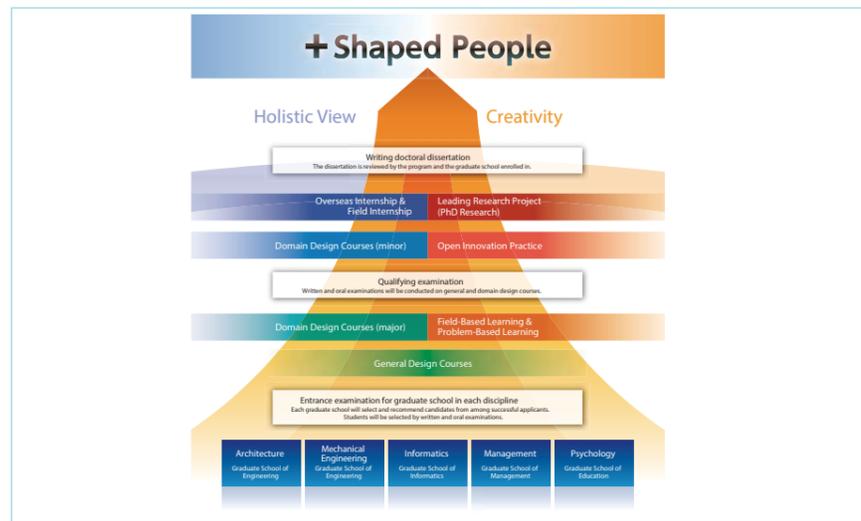
Along with the Yoshida and Katsura campuses, the Design Innovation Center in Kyoto Research Park serves as one of the program's hubs. FBL/PBL training, Leading Project work, and lectures by overseas professionals and industry representatives take place here, providing opportunities for individuals from the industry, government, and academic spheres to gather and engage in practical learning. In addition, the Design Innovation Consortium, which was established to support the industry-government-academic cooperation placing the program as a core, supports initiatives such as "Open Innovation," which harnesses the university's intellectual network to design solutions



Design innovation center (Kyoto Research Park Building 9)

to issues faced by the industrial world, "Design Seminar," which features university lectures on design theory as well as practical elements, and more. As of June 2018, 70 different member organizations, including major firms and municipalities, are serving as the principal contributors to the consortium.

Through these efforts, we strive to promote education and research in the Design Program through an alliance of industry, government, and academic entities while fostering an environment that opens career paths for the program's graduates.



Fostering the development of "plus-shaped people," experts who transcend the bounds of their disciplines to work with others through the Program

DATA (FY2018)

- [Number of students recruited] 20 a year (*15 a year (FY 2013))
- [Percentage of overseas students and mid-career students (shakajijin)] 20% - 35%
- [Matriculated graduate schools, departments, etc.] 4 graduate schools, 11 departments/divisions (Graduate School of Education) Interdisciplinary Studies in Education (Graduate School of Engineering) Architect and Architectural Engineering, Mechanical Engineering and Science, Micro

- Engineering, Aeronautics and Astronautics (Graduate School of Informatics) Intelligence Science and Technology, Social Informatics, Applied Mathematics and Physics, Systems Science, Communications and Computer Engineering (Graduate School of Management) Business Administration
- [Collaborating universities in Japan and overseas] 1 university Kyoto City University of Arts

- [Collaborating organizations] 5 companies Nippon Telegraph and Telephone Corporation / NEC Corporation / Mitsubishi Electric Corporation / Panasonic Corporation / Nomura Research Institute

[Number of program graduates (including anticipated number)] 6 (FY 2017), 8 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 6 to universities, 4 to private companies, 1 to governmental agency, 1 to start-up business, 2 to others

Osaka University

Humanware Innovation Program



This program aims to cultivate outstanding leaders via intensive interdisciplinary studies (Seido Jukugi: in-depth discussion) to foster leaders who can construct flexible, robust, and sustainable systems that support an ever-changing social environment by introducing an entirely new concept: humanware.

[Contents of Diploma]

Completion of "Humanware Innovation Program" is noted on doctoral diplomas.

Cultivating "networking" doctoral professionals who change the direction of innovation

Information technology has developed remarkably thanks to the power of two "-wares", i.e., "hardware" and "software". People and machines are now closely interconnected through the information networks which together form a complex and dynamic large-scale network. As a result, a wide variety of unpredictable problems emerge perpetually. In addition, information systems put more and more burden on both humans and the environment. In order to support the ever-changing social environment, this program fosters leaders who can utilize the third type of "-ware", the "humanware", to change the direction of innovation that would construct flexible, robust, and sustainable systems. This Humanware Innovation Program, which is offered in close collaboration between the three graduate schools in Osaka University, cultivates bi-directional "networking" doctoral professionals equipped with expertise across information, life, and cognitive/brain sciences and capable of generating innovations that mutually incorporate each of them.

Seido Jukugi: in-depth discussion that allows the development of global leadership skills

In order to develop expertise related to humanware, it



Humanware integrates the dynamics of information, life, and cognitive/brain sciences

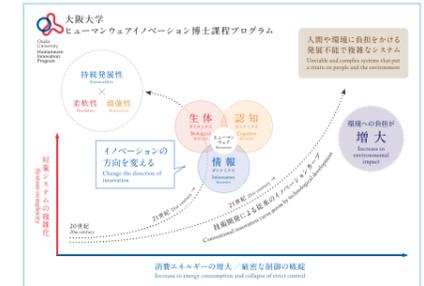
DATA (FY2018)

- [Number of students recruited] 20 a year
- [Percentage of overseas students and mid-career students (shakajijin)] 21% - 6%
- [Matriculated graduate schools, departments, etc.] 3 graduate schools, 9 departments (Graduate School of Information Science and Technology) Information and Physical Sciences, Computer Science, Information Systems Engineering, Information Networking, Multimedia Engineering, Bioinformatic Engineering (Graduate School of Frontier Biosciences) Frontier Biosciences

[Number of program graduates (including anticipated number)] 16 (FY 2017), 15 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 11 to universities, 20 to private companies

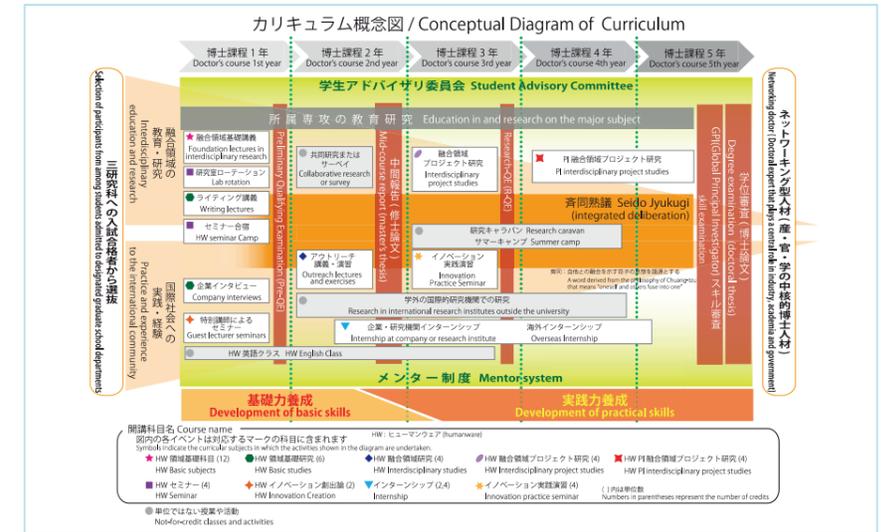
is essential to comprehend the "biological dynamics" of organisms that adapt and evolve in dynamically changing natural environment. It is also necessary to understand the "information dynamics" required to construct an information society attuned to both humans and the environment, and "cognitive dynamics", the dynamics of higher brain functions that generate new information. We also develop the practical abilities of the students, such as design ability, communication ability, and management ability.

For this aim, we invite world level experts as lectures from outstanding companies and research institutes, and offer the practical exercise course including the strategic planning of research and development, designing new projects causing a big change in the society, and industrialization of research outcomes. Each student is guided by three advisors including a professor with the same expertise, a professor belonging to the other graduate school, and a world level expert from an external organization. By virtue of this mentoring, individualized instructions are provided from diverse points of views.



Humanware contributes to shift the direction of innovation by developing flexible, robust, and sustainable technologies

Through the enrollment of talented international students, internship at an international company or research institute, and summer camps by utilizing overseas centers and partner organizations, the communication skills required for the global leaders are developed.



Fostering elite professionals capable of producing global innovation by accessing interdisciplinary knowledge in the leading edge of technology fields

Inquiries: 06-6879-4349 Website: <http://www.humanware.osaka-u.ac.jp>

- [Collaborating organizations] 10 companies, 4 public research institutes Advanced Telecommunications Research Institute International / Toshiba Corporation / NEC Corporation / Nippon Telegraph and Telephone Corporation / Panasonic Corporation / Hitachi, Ltd. / Microsoft Research / Japan Science Foundation / OMRON Corporation / HORIBA, Ltd / National Institute of Advanced Industrial Science and Technology / RIKEN / National Institute of Information and Communications Technology / Medical Research Council, Laboratory of Molecular Biology (UK)

- [Collaborating universities in Japan and overseas] 5 universities University of Manchester / Peking University / University of California / Shanghai Jiao Tong University / University of Sydney

[Number of program graduates (including anticipated number)] 16 (FY 2017), 15 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 11 to universities, 20 to private companies

University of Tsukuba

Ph.D. Program in Empowerment Informatics



Our program aims to cultivate global individuals who can create systems that “empower people” and show initiatives in an international society full of people from various cultural backgrounds, while demonstrating professional research skills. To achieve this, this program has three main educational objectives such as “interdisciplinary ability,” “presentation ability,” and “frontline ability.”

[Contents of Diploma]

Degrees conferred: PhD degrees in Human Informatics, Major in Empowerment Informatics

Cultivating individuals capable of designing systems that empower people

Empowerment Informatics is a new systematized approach to: supplement people's abilities, harmonize with people's lives, and extend people's creativity by means of Informatics, as elaborated below.

The Three Pillars of Empowerment Informatics

Supplementation: Supporting, complementing, and improving people's physical, cognitive, and social functions

Harmony: Seamlessly integrating the engineering systems people interact with into their lives

Extension: Extracting and enhancing people's latent creativity For the future human society, engineering systems that improve the quality of people's lives in terms of security, convenience, and psychological fulfillment will be essential. This program aims to cultivate individuals who are capable of creating such systems for the empowerment of people. In addition to fundamental research skills, the program aims to foster the following three abilities to create global leaders who can excel in the industrial sector as well:

The Three Goals for Developing Talented Individuals

Interdisciplinary Ability: The ability to critically examine issues from multiple perspectives by harnessing one's broad-mindedness and creativity

Presentation Ability: Possessing a strong intuitive and ideological foundation that allows one to effectively and persuasively express the essence of one's research

Frontline Ability: The ability to solve problems across



The “Empowerment Studio”: Improving developed systems through exhibitions.

industrial, academic, and governmental settings

Interdisciplinary research training and guaranteed educational quality

The students of this program will be enrolled in the School of Integrative and Global Majors, an all-encompassing academic organization with the same functions as the existing graduate studies program. This system allows students to be taught by faculty not only in engineering and information-related fields, but also faculty in the arts, medicine, business science, and other disciplines. In addition, because researchers from other domestic and international universities and research organizations as well as industrial researchers are involved in the program, students can learn from a team that combines talent from different fields, areas, and the industrial, academic, and government sectors (on average, five such individuals are available for every student).

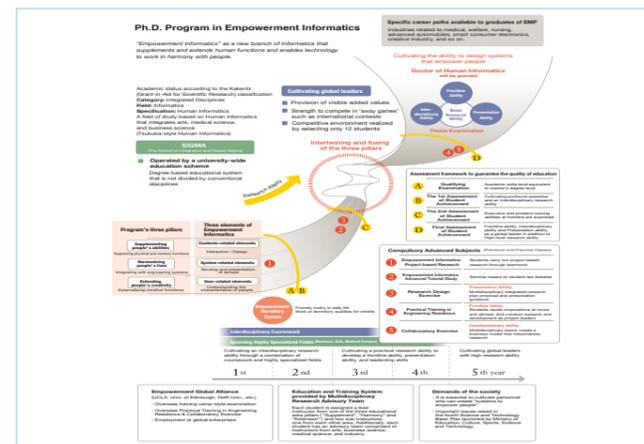
Students will deepen their professional expertise and research skills in one of the three areas, supplementation, harmony, and extension. The latter half of the program will focus on developing students' ability to implement



The “Empowerment Dorm”: First- and second years are required to live here, which promotes collaboration among students

systems that combine the aforementioned three pillars while demonstrating overall mastery of “empowerment informatics.” Furthermore, to ensure educational quality, a Qualifying Examination will be held in addition to three levels of progress evaluation (first, second and final). Upon obtaining the prescribed number of credits, students who have passed the progress evaluations and other requirements will submit a dissertation, and should they pass the thesis defense, they will receive their Ph.D. (Human Informatics).

Program System Details



With “Human Informatics” as the foundation, the curriculum takes an original and practical approach that emphasizes cross-disciplinary study in the arts, medicine, and business science

Inquiries: 029-853-8740 Website: <http://www.emp.tsukuba.ac.jp>

DATA (FY2018)

[Number of students recruited] 9-18 a year
[Percentage of overseas students and mid-career students (shakajiri)] 35% · 2%
[Matriculated graduate schools, departments, etc.] 4 graduate schools, 16 departments

(Graduate School of Systems and Information Engineering) Policy and Planning Sciences, Risk Engineering, Computer Science, Intelligent Interaction Technologies, Engineering Mechanics and Energy (Graduate School of Business Sciences) Systems Management and Business Law, Systems Management, Advanced Studies of Business Law (Graduate School of Comprehensive Human Sciences) Medical Sciences, Art and Design, Clinical Sciences, Kansei, Behavioral and

Brain Sciences, Psychology, Nursing Sciences (Graduate School of Library, Information and Media Studies) Library, Information and Media Studies
[Collaborating universities in Japan and overseas] 11 universities

Nagoya University / Ibaraki Prefectural University of Health Sciences / Tsukuba University of Technology / University of Edinburgh / Delft University of Technology / Eindhoven University of Technology / University of Valenciennes / University of California, Los Angeles / University of Southern California / Massachusetts Institute of Technology / University of Art and Design Linz

[Collaborating organizations]

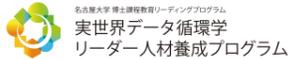
9 companies, 1 public research institute
Panasonic Corporation / Nissan Motor, Co., Ltd. / Hitachi, Ltd. / NEC Corporation / Shiseido Co., Ltd. / Entropy Control, Inc. / Ars Electronica Linz GmbH / Tsukuba Memorial Hospital / TX Entrepreneur Partners / National Institute of Advanced Industrial Science and Technology

[Number of program graduates (including anticipated number)] 3 (FY 2016), 4 (FY 2017), 9 (FY 2018)

[Main destinations of program graduates (including anticipated destinations)] 2 to universities, 7 to private companies, 1 to public research institute, 1 to start-up business, 1 to other

Nagoya University

Graduate Program for Real-world Data Circulation Leaders



This program aims to develop leaders in the new field of “real-world data circulation” who utilize skills from engineering, information science, medical science, and economics in order to acquire, analyze, and implement real-world data and generate new value for society.

[Contents of Diploma]

Completion of “Graduate Program for Real-World Data Circulation Leaders” is noted on doctoral diplomas.

Real-world data circulation: Studying the acquisition, analysis, and implementation of data

The world's industries are globalizing at a rapid pace, and Japanese companies are experiencing more competition than ever before in an increasingly harsh environment. These changes have put pressure on Japanese manufacturers to create products and services that provide convenience, enjoyment, health, and enrichment and make people feel like they're deriving real social value from them.

This program aims to cultivate leaders in the new field of “real-world data circulation” who can acquire, analyze, and implement real-world data to create new value for society. Specifically, students will systematically learn the methodology for extracting more fundamental value through engineering (convenience), information science (enjoyment), medical science (health), and economics (enrichment). In addition, in order to generate a cycle for the process of creating social value, students will gain a holistic understanding of the three primary data-related skills: “acquisition,” which involves using measurements and other methods to translate the various phenomena considered necessary in the real world into digital data; “analysis,” which involves examining the background and complete picture of the data using information science technology; and “implementation,” which involves using the results of the analysis to create new products and services.



Real-world data analysis training: “Data Tools Next” (Photo: Training related to positional information sensing)

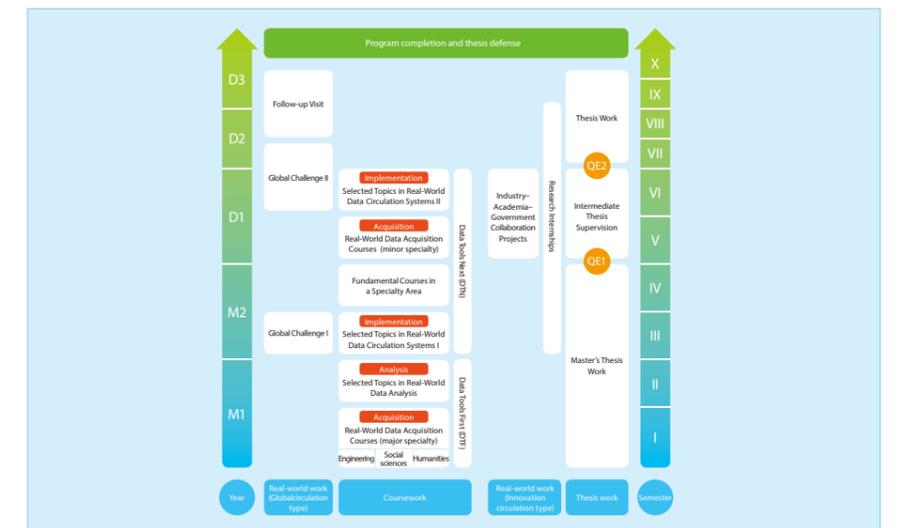
Acquiring real-world data circulation skills

The students in the program will craft their own personalized curriculum to acquire the fundamentals of real-world data circulation, a broad perspective on how data operates in various real-world technology, and the ability to construct new forms of real-world data circulation that generate new value. To help them obtain these abilities, this program will focus on “real-world work,” which provides students with numerous practical experiences both domestic and international (consisting of “innovation circulation” [on-site industry experiences] and “global circulation” [international on-site experiences]). Students will also acquire the fundamentals of real-world data circulation through their coursework and undergo research guidance that will help them produce a dissertation that crystallizes the fruits of their research. The program also provides cutting-edge equipment and information-processing equipment, as well as the



“Real-world work” Global Challenge I (Photo: Summer school in Istanbul Technical University)

“leaders’ saloon” and “leaders’ studio,” where students from various disciplines can freely interact and come up with new ideas. Both facilities will host discussions, presentations, real-world data acquisition experiences, and more for program students.



In addition to research guidance, students complete course works in real-world data circulation studies and practical domestic and international experiences in real world work

Inquiries: 052-789-3171 Website: <http://www.rwdc.is.nagoya-u.ac.jp>

DATA (FY2018)

[Number of students recruited] At Most 20 a year
[Percentage of overseas students and mid-career students (shakajiri)] 52% · 19%
[Matriculated graduate schools, departments, etc.] 4 graduate schools, 12 departments

(Graduate School of Informatics) Mathematical Informatics, Complex Systems Science, Social Informatics, Cognitive and Psychological Sciences, Computing and Software Systems, Intelligent Systems (Graduate School of Engineering) Mechanical Systems Engineering, Information and Communication Engineering (Graduate School of Medicine) Integrated Medicine, Medical Science (Graduate School of Economics) Socioeconomic Systems, Industry

[Number of program graduates (including anticipated number)] 1 (FY 2017), 2 (FY 2018)

[Main destinations of program graduates (including anticipated destinations)] 2 to universities, 1 to start-up business

Management Systems

[Collaborating universities in Japan and overseas] 9 universities, 2 inter-university research institutes
University of Tokyo / Hitotsubashi University / Keio University / Hanoi University of Science and Technology / Chalmers Technical University / Massachusetts Institute of Technology / University of Southern Denmark / University of Electronic Science and Technology of China / Chulalongkorn University / The Research Organization of Information and Systems The Institute of Statistical Mathematics / National Institute of Informatics

[Collaborating organizations]

12 companies, 2 public research institutes, 1 local public body
Toyota Central R&D Labs / Denso / MHI Aerospace Systems Corp. / Astellas Pharma Inc. / NTT / IBM Japan / Neteer Group Co. / Sumitomo Electric Industries / Space-Time Engineering / Microsoft Research Asia / Canon Information Technology (Beijing) Co. / Cortico / National Center for Geriatrics and Gerontology / Aichi Prefecture

Toyohashi University of Technology

Innovative program for training brain-science-information-architects by analysis of massive quantities of highly technical information about the brain



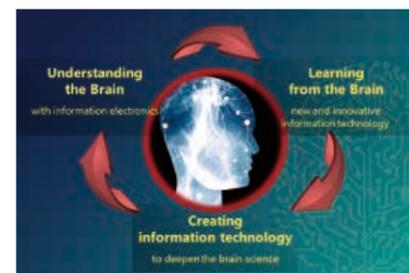
This program aims to cultivate students who can take brain-related information of various spatiotemporal scales, from the genomic level to the individual and social levels, and apply that information using sensing and simulation technology to solve various problems in the field of neuroscience. Additionally, students will learn how to use the new principles they have learned to devise new electronic devices and information processing methods.

[Contents of Diploma]

Degrees conferred: PhD degrees in Engineering. Completion of "Program for Training Brain Information Architects" is noted on the diploma.

Cultivating brain information architects

It is becoming increasingly clear that as society becomes more data-driven, it is necessary to re-evaluate the technology that supports these developments from a variety of information usage oriented perspectives. In other words, it is not enough to simply create technology that can rapidly and efficiently transmit, accumulate, and utilize data. Rather, there is a strong demand for a new paradigm for information electronics that is based on a scientific understanding of human and societal cognition, comprehension, decision making, and action. This kind of paradigm shift in information electronics is difficult to achieve simply by extending conventional information science and technology concepts. Only through a deep, large-scale exploration of that wellspring of information that is the brain on both a micro level, via genomic studies and the like, and a macro level, via a study of society (organizations), we can achieve revolutionary information science and technology based on the brain functions and its systems, which are now desperately desired. It is for this reason that this program aims to develop "brain information architects" who can take brain-related information of various spatiotemporal scales, from the genomic level to the individual and social levels, apply that information using sensing and simulation technology to solve various problems in the field of neuroscience, and apply new principles learned from brain to new electronic devices and information processing methods.



The goal for cultivating brain information architects: Learn about and from the brain to produce new information technology

Practical skill development

(1) Research themes guided by group instructors under industry-academic-government cooperation

This program provides a system of group instructors involving professors from the university as well as representatives from other universities and institutions of government and company both domestic and international. Through this system, an interdisciplinary course of research based on large-scale information on the brain that supports a variety of career paths can be determined. Students will decide the theme of their doctoral research during their second year in the master's program through the discussion with the group instructors.

(2) Three phases on-the-job training for cultivating leaders with practical skills

In the doctoral program, the following three phases of compulsory on-the-job training will be implemented in order to help students forge a career path.

- (1) Neuroscience Internship: Students will participate in lectures and practical training offered by Hamamatsu University School of Medicine and the National Institute for Physiological Sciences in order to master the fundamentals of neuroscience. In addition, they will

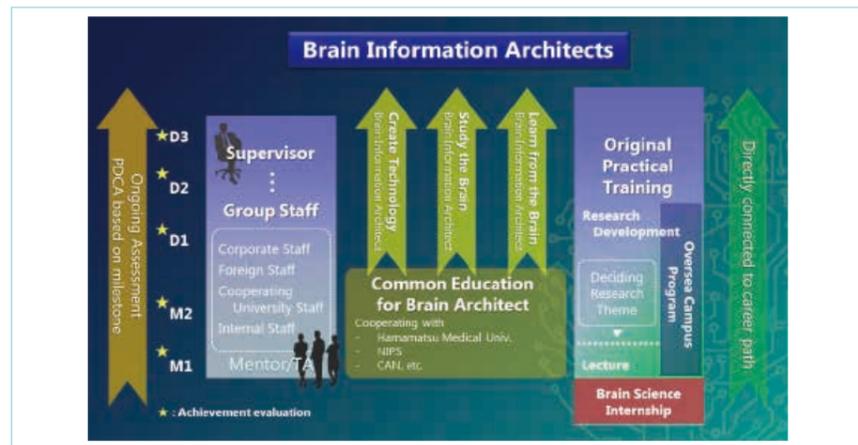


Global Summer School: Students engaged in field work in Malaysia

attend applied neuroscience consortium lectures held by brain-related industry to gain an understanding of what neuroscience developments industry figures are expecting.

- (2) Global Summer School: Students will attend the Technology Collaboration Center in Penang to obtain a global perspective as technology experts and researchers.

- (3) Doctoral On-the-job Training: Students will work with mainly overseas research institutes and partner companies to apply the research skills they have learned as well as acquire research and technology management skills.



A five-year integrated education program that utilizes a group instructor system to train "brain information architects"

Inquiries: 0532-44-1028 Website: <http://brain.tut.ac.jp>

DATA (FY2018)

[Number of students recruited] 10 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 4% · 0%
 [Matriculated graduate schools, departments, etc.] 1 graduate school, 5 departments
 (Graduate School of Engineering) Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Environmental and Life Sciences, and Architecture and Civil Engineering

[Collaborating universities in Japan and overseas] 8 universities, 2 inter-university research institutes
 Hamamatsu University School of Medicine / The University of Tokyo / Tokyo Women's Medical University / Kyoto University / Massachusetts Institute of Technology / Lomonosov Moscow State University / University College London / Royal Institute of Technology / National Institute for Physiological Sciences / National Institute of Informatics

[Collaborating organizations] 2 companies, 3 public research institutes
 Honda Electronics / Hamamatsu Photonics / National Institute of Advanced Industrial Science and Technology / Riken / The Scripps Research Institute

[Number of program graduates (including anticipated number)] 2 (FY 2016), 1 (FY 2017), 2 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 5 to private companies

Waseda University



Graduate Program for Embodiment Informatics

Graduate Program for Embodiment Informatics

This program develops global leaders in a new academic field that leads a new trend that integrates physical existences with information and knowledge that are generally invisible. Students will master the ability to identify essential issues in order to drive innovation (foresight), to apply what they know to system configuration issues (imagination), and to implement solutions by using human and physical resources (leadership and accomplishment abilities).

[Contents of Diploma]

Degrees conferred: PhD degrees in Engineering. Completion of "Graduate Program for Embodiment Informatics" is noted on the diploma.

Cultivating global leaders who can spearhead innovation

Embodiment Informatics is a new interdisciplinary research field that generates new value on multiple levels by utilizing the computing benefits (calculation) provided by information technology, the networking benefits (resource sharing) provided by communications technology, and the physical benefits (active power) provided by mechanical technology in order to guide the application benefits (direct value gained from problem solving) provided by the key sectors of industry, medicine, and environment. The Embodiment Informatics Doctoral Program aims to cultivate individuals who have the perception, imagination, and execution skills necessary to serve as leaders in technological and industrial innovation.

*Foresight: The ability to understand global trends from an international perspective and recognize the essential issues that can lead to innovation

*Imagination: The ability to combine cutting-edge information, communication, and mechanical technology to construct broad systems for solving issues

*Leadership and accomplishment abilities: The ability to mobilize human and physical resources to implement one's vision and solve issues

with opportunities to quickly gain experience at partner firms and overseas institutions, helping them to attain the fundamental abilities necessary for becoming global leaders.

The program also regularly hosts high-quality colloquiums featuring specially invited scholars / engineers / innovators, as well as informal "tea time" gatherings to stimulate further discussion, providing an environment for both various scholars and guests from overseas to engage in a lively exchange of ideas. Furthermore, students participate in group work that encourages them to directly engage with methodologies from other disciplines in order to learn multiple problem-solving paradigms and be exposed to the various mechanical and information-related research themes their peers are exploring.



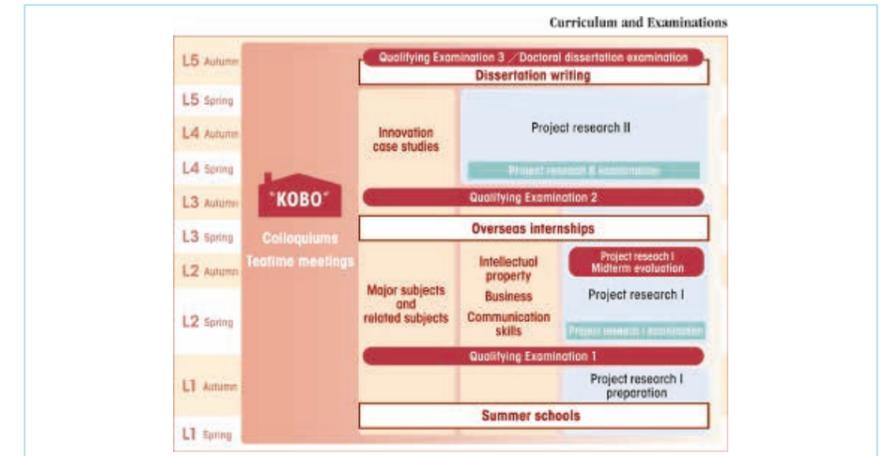
Students from different fields are engaged in a cross-discipline experiment

"KOBO": Providing a stimulating multi-disciplinary learning environment

"KOBO" are one of the program's unique features. KOB

are spaces for research that are independent from advisors' research labs, allowing researchers from various disciplines to gather and provide a stimulating learning environment for each other. Students are encouraged to make the most out of this program feature.

Curriculum Details



Through three qualifying examinations held over the five-year program, two research project plan evaluations, and a number of internships, we produce leaders capable of spearheading innovation

A curriculum consisting of in-depth coursework and group work

In the curriculum, students with a mechanical sciences background study information science, while students from an information science background study mechanical science. This allows them to develop a broad engineering background. In addition, the program provides students



A class taking place in one corner of a "KOBO"

DATA (FY2018)

[Number of students recruited] 18 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 33% · 8%
 [Matriculated graduate schools, departments, etc.] 5 graduate schools, 11 departments
 (Graduate School of Fundamental Science and Engineering) Pure and Applied Mathematics, Applied Mechanics, Electronic and Physical Systems, Computer Science and Communications Engineering, Intermedia Art & Science
 (Graduate School of Creative Science and Engineering) Modern Mechanical Engineering, Industrial and Management Systems Engineering
 (Graduate School of Advanced Science and Engineering) Pure and Applied Physics, Integrative Bioscience and Biomedical Engineering
 (Graduate School of Environment and Energy Engineering) Environment and Energy Engineering
 (Graduate School of Information, Production and Systems) Information, Production and Systems

[Collaborating universities in Japan and overseas] 27 universities, 1 inter-university research institute
 Worcester Polytechnic Institute / Swiss Federal Institute of Technology in Lausanne (EPFL) / University of California, Berkeley / Technical University of Munich (TUM) / Karlsruhe Institute of Technology / Carnegie Mellon University / Saint Anna School of Advanced Studies / Italian Institute of Technology (IIT) / Shanghai Jiao Tong University / Nagoya University / University of Tsukuba / Toyohashi University of Technology / University of California, Davis / Johns Hopkins University / KTH Royal Institute of Technology / Tallinn University of Technology / Northumbria University / The University of Manchester / Rice University / Loughborough University / Huazhong University of Science and Technology / Tsinghua University / University of Electro-Communications / University of Southern California / Kyoto Prefectural University of Medicine / University of Oxford / The University of Edinburgh / National Institute of Informatics (NII)

[Number of program graduates (including anticipated number)] 5 (FY 2016), 2 (FY 2017), 12 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 3 to universities, 12 to private companies, 2 to public research institutes

Inquiries: 03-5286-2836 Website: <http://www.leading-sn.waseda.ac.jp/>

Kanazawa University

Graduate Program in Cultural Resource Management



This program aims to nurture individuals willing to search for the future significance and utility of the cultural resources handed down in the world's various countries and regions, as well as devise and implement plans for all humans that involve "the excavation, management, and utilization of resources in order to make local cultural resources relevant on a global scale."

[Contents of Diploma]

Degrees conferred: PhD degrees in either Socio-Environmental Studies, Arts, Law, Economics, or Philosophy. Completion of "Graduate Program in Cultural Resource Management" is noted on the diploma.

Seeking the potential of cultural resources

In this five-year graduate program, students will strive to become "cultural resource managers," individuals who respect the diversity of humankind and have a drive to uncover the future significance and utility of various cultural resources around the world, as well as devise and implement plans for all humans that involve "the excavation, management, and utilization of resources in order to make local cultural resources relevant on a global scale."

Cultural resource studies concerns the preservation, accession, and utilization of the cultural resources of the world's countries and regions against the backdrop of the constant change being brought about by economic development and globalization. It is a practical field of study aimed at contributing to solutions for issues such as nationalism and exploitation of cultural resources for economical gain.

Those who master this field and can apply the skills they acquire are called "cultural resource managers," and this program aims to produce as many such individuals as possible.

Establishing a symbiotic multicultural society

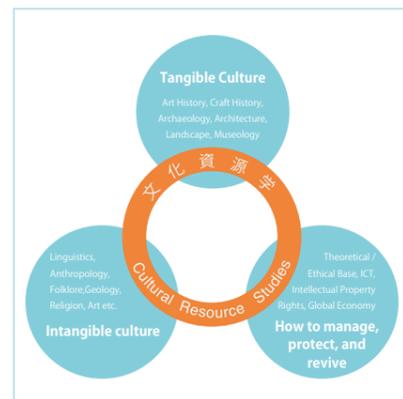
Four Japanese students and four international students from China, Thailand, Indonesia, and Vietnam who enroll in the program in the same year will form a team and engage in on-site training, research, and international workshops, which are the hallmark of the program. Constant exposure to an international environment will help students to cultivate the abilities they need to make a harmonious multicultural society a reality.

The first year will focus on the fundamentals of cultural resource studies as well as research training where the accession and utilization of cultural resources are actually taking place, in order to encourage team-building. The second year will focus on longer-term training than the first year, and there will be discussions through which students will explore how to best utilize local cultural resources. The third year will have students narrowing their regional focus in preparation for their full-scale research during the fourth year. At the same time, they will plan and hold international workshops on cultural resource utilization with their team. The fourth year will have students perform long-term research in their region of choice in order to formulate a plan for managing and utilizing cultural resources. Debates and workshops with international

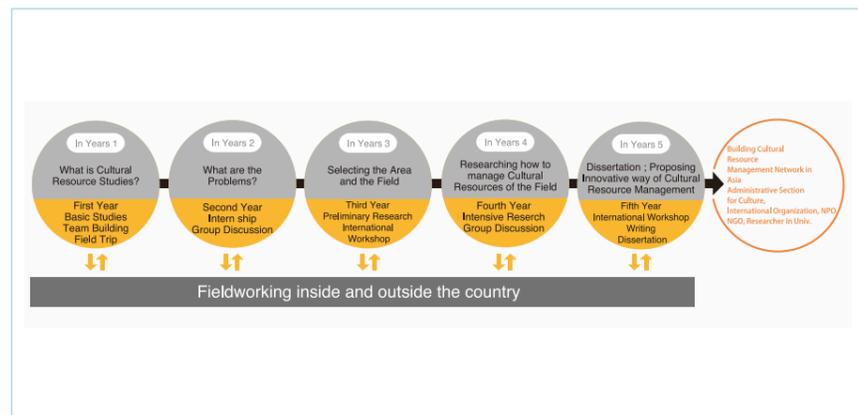


Training in Vietnam: Lecture at the My Son Sanctuary World Heritage Site

teams will take place as well. In their fifth year, students will give presentations on cultural resource management and utilization methods based on the research completed in their fourth year and write their dissertations. After graduation, students are encouraged to apply their skills in national or local government, international organizations such as UNESCO, museums, private firms that deal with folk resources, and so on. It is our dream that in the near future, an international cultural management network consisting of program graduates to be formed, establishing the foundation for a symbiotic multicultural society.



Cultural resource studies combines a number of academic fields related to the study of culture



Activities in an international team of classmates; Cultivation of global cooperation, mutual understanding, and leadership through the education and guidance

DATA (FY2018)

[Number of students recruited] 8 a year
 [Percentage of overseas students and mid-career students (shakajim)] 53% · 13%
 [Matriculated graduate schools, departments, etc.] 1 graduate school, 6 divisions
 (Graduate School of Human and Socio-Environmental Studies) (Master Level) Division of Humanities, Division of Law and Politics, Division of Economics, Division of Regional Development Studies, Division of International, (Doctoral Level) Division of Human and Socio-Environmental Studies

[Collaborating universities in Japan and overseas] 4 universities, 1 inter-university research institute
 School of Archaeology and Museology, Peking University, China / Chiang Mai University, Thailand / Bandung Institute of Technology, Indonesia / University of Social Sciences and Humanities, Vietnam National University - Hanoi / The National Institutes for the Humanities, National Museum of Ethnology
 [Collaborating organizations] 3 companies, 7 public research institutes, 2 local public bodies, 6 others
 Kirimoto woodworker · Wajima kirimoto / Ceramic art workshop "Tuchibito" / Yamato soy sauce and Miso Co. Ltd. / International

Research Centre for Intangible Cultural Heritage in the Asia-Pacific Region (IRCI) / Sainsbury Institute for the Study of Japanese Arts and Cultures (England) / Honduran Institute of Anthropology and History (Honduras) / Tokyo National Research Institute for Cultural Properties / Center For Archaeological operations in Ishikawa Prefecture / Kanazawa Archaeological Center / Komatsu Archaeological Center / Kanazawa city / Wajima city / Farm-inn NPO: Executive Committee of Shunran no Sato / Kanazawa Good Will Guide Network / NPO: Kaga Hakusan Yozozatta / Maruyama Gumi / Gokayama Gurashi Annainin as guide volunteer group / Tokokusan Yoko temple

[Number of program graduates (including anticipated number)] 3 (FY 2017), 4 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 2 to universities, 1 to public research institute

Inquiries: 076-264-5446 Website: <http://crm.hs.kanazawa-u.ac.jp/>

Osaka University



Doctoral Program for Multicultural Innovation

The goal of this program is to produce researchers and active individuals selected from our graduate schools of humanities and sciences who deepen their specialist knowledge while demonstrating a deep understanding and respect of others and have the intellect, skill, applicable knowledge and drive to craft and implement fresh models of multicultural coexistence for the future.

[Contents of Diploma]

Completion of "Doctoral Program for Multicultural Innovation" is noted on doctoral diplomas.

Cultivating future innovators who pave the way toward a truly multicultural society

In today's society, globalization has led to a massive flow of people, things, money, and information transcending national borders at a constant, rapid pace. As a result, multicultural coexistence has become one of society's most pressing needs. This program aims to cultivate researchers and active individuals selected from our graduate schools of humanities and sciences who deepen their specialist knowledge while demonstrating a deep understanding and respect of others. Having the intellect, skill, applicable knowledge, and drive to craft and implement the fresh future models of coexistence for the people with different attribute and background, students should strive to become "Innovators for Future Coexistence".

It is our hope that students who complete this program take on leadership roles both domestically and internationally where they lend a broad-minded, creative perspective to making multicultural coexistence a reality.

Unique, hands-on experiences that provide real skills

In order to cultivate these innovators, it is essential that they gain multicultural competency through mastery of six areas: multilingual literacy, field literacy,



Receiving a lecture while doing research in Zambia

global literacy, research literacy, policy literacy, and communication literacy.

Coursework and research work form the backbone of the curriculum. Coursework involves academic work, in which students take an active role in learning from various disciplines, and "practical work," which is the hallmark of the program and entails students learning out in the field in order to tackle the problems of multicultural coexistence head-on.

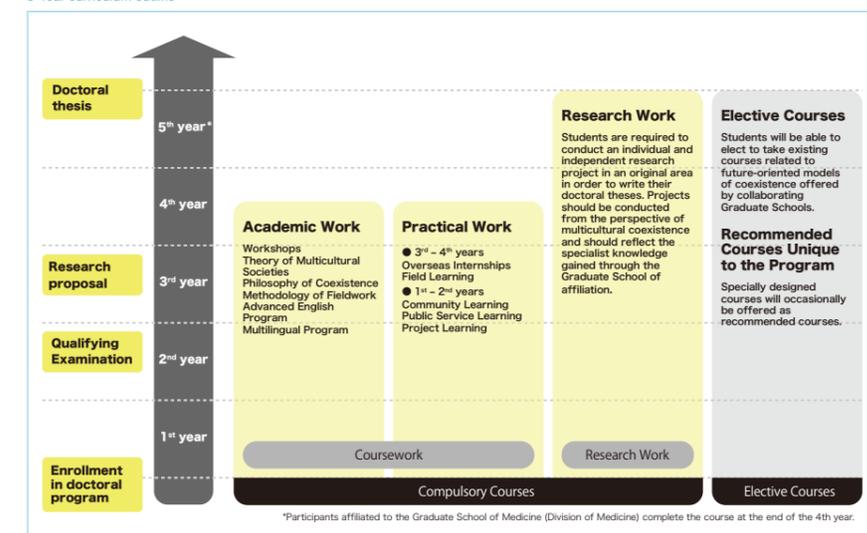
"Practical work" is a unique feature of the following program that goes beyond typical graduate program offerings. Community Learning (first year): Students perform field work in areas affected by the Great East Japan Earthquake. Public Service Learning (first year): Students carry out public service by engaging in activities at schools, hospitals, local governments, and other sites. Project Learning (second year): They plan and execute projects with people at sites. Overseas Internship (third year): They tackle global issues on site. In addition, in



Performing local work in Noda Village, Kunhe District, Wate Prefecture (Community learning)

performing research work, students not only receive guidance from professors in a multiple fields, but also receive advice from a number of program representatives outside of the university.

5-Year curriculum outline



A wide variety of academic and practical training provides support for "Innovators for Future Coexistence"

DATA (FY2018)

[Number of students recruited] 15 a year
 [Percentage of overseas students and mid-career students (shakajim)] 19% · 10%
 [Matriculated graduate schools, departments, etc.] 8 graduate schools, 16 departments
 (Graduate School of Letters) Studies on Cultural Forms, Studies on Cultural Expressions
 (Graduate School of Human Sciences) Human Sciences
 (Graduate School of Law and Politics) Law and Political Science

(Graduate School of Economics) Economics, Business and Management
 (Graduate School of Medicine) Medicine, Health Science
 (Graduate School of Engineering) Global Architecture, Management of Industry and Technology
 (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

[Collaborating universities in Japan and overseas] 4 universities
 Osaka City University / University of Groningen / Gadjah Mada University / Copperbelt University
 [Collaborating organizations] 4 companies, 1 local public body, 1 other
 Active Unit / NHK / United Nations Association of JAPAN / Kansai Economic Federation / Osaka Prefectural Board of Education / NPO Multilingual Center FACIL

[Number of program graduates (including anticipated number)] 2 (FY 2017), 4 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 2 to universities, 1 to governmental agency

Inquiries: 06-6850-6926 Website: <http://www.respect.osaka-u.ac.jp/>

Doshisha University



Global Resource Management

The goal of this program is to foster global leaders who will work alongside the local people and communities in emerging and developing countries to gain a full appreciation and understanding of culture and help them to their struggles. Through their experiences and practical knowledge, eventually, these leaders will contribute to the development of Japan and the world.

[Contents of Diploma]

Completion of "Global Resource Management Program" is noted on doctoral diplomas.

Global leaders working towards solutions on issues related to multicultural coexistence

Many of the ethnic and religious conflicts happening in parts of the world have arisen due to resource and infrastructure inequality. This program aims to pursue multicultural coexistence by exploring to what degree the world's resources can be appropriately and equitably managed and used, as well as how much infrastructure can be created to develop society.

When it comes to developing and struggling countries, there is a limit to what those in the humanities, social sciences, and engineering sciences can do on their own. This program takes an interdisciplinary approach by fusing the humanities and sciences into a single discipline called "global resource management," which entails both a study of the energy and infrastructure that underpins our livelihoods and an exploration of modern issues that affect the entire world through the lens of the humanities and social sciences.

The global leaders this program aims to develop in order to make multicultural coexistence a reality should be able to see things from the perspectives of those in extremely serious circumstances, as well as demonstrate the will to cultivate knowledge that alleviates those circumstances and leads to further development.

Students will gain practical experience and broadness of perspective through training at local governments and international organizations. Professors from nine disciplines will utilize their worldwide network to lend their support.



Field work focused on the issues surrounding the spread of renewable energy (a joint lecture by Hiroshima University and Texas University)

Humanities students generate electricity while science students ponder global issues

Students will gain a deeper understanding of other fields through their interdisciplinary studies. For example, students in the humanities will learn the basics of electrical wiring and repair by assembling a generator. Meanwhile, students in the sciences learn about the history of sectarian conflict and multicultural coexistence through fieldwork in developing nations, as well as participate in social service activities being carried out by NGOs and firms to help those in need.

■ Voice from who completed the Program

In today's world, where technology is evolving at a rapid pace and the state of world affairs is constantly changing, taking interest in fields that you think have nothing to do with you and broadening your horizons is important.

In the GRM program, people of various nationalities and specialties come together to tackle issues from both a humanities and scientific perspective and challenge

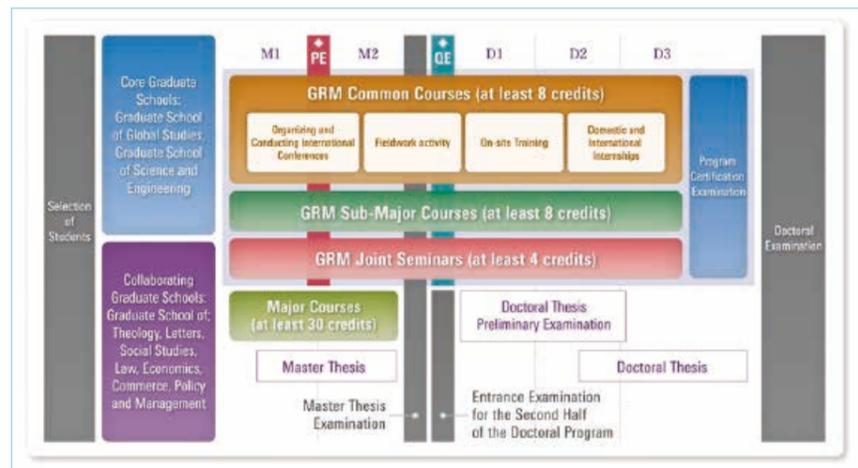


At a seminar attended by both humanities and science students, a lively discussion that transcends disciplines takes place.

each other every day to cultivate the skills needed to be global leaders.

Also, the program has a job search support system that provides a lot of advice to students.

I was able to get hired by a company that handles operations on a global scale. I think that's because of the skills I gained through my internship and the GRM program.



A 5-year Master's/Doctoral program that instills practical knowledge to cultivate individuals who will make multicultural coexistence a reality

Inquiries: 075-251-3259 Website: <https://grm.doshisha.ac.jp/>

DATA (FY2018)

[Number of students recruited] 15 a year
 [Percentage of overseas students and mid-career students (shakajim)] 55% · 15%
 [Matriculated graduate schools, departments, etc.] 9 graduate schools, 16 majors
 Graduate School of Global Studies (Global Studies)
 Graduate School of Science and Engineering (Information and Computer Science, Electrical and Electronic Engineering, Mechanical Engineering, Applied Chemistry, Science of Environment and Mathematical Modeling)
 Graduate School of Theology (Theology)
 Graduate School of Letters (Philosophy)

Graduate School of Social Studies (Social Welfare, Industrial Relations)
 Graduate School of Law (Public Law)
 Graduate School of Economics (Economic Theory, Applied Economics)
 Graduate School of Commerce (Commerce)
 Graduate School of Policy and Management (Policy and Management)
 [Collaborating universities in Japan and overseas] 15 universities, 1 inter-university research institute
 Kyrgyz National University Named After Jusup Balasagyn / University of the Philippines / University of Tehran / Hasanuddin University / Middle East Technical University / L'École des Hautes Etudes en Sciences Sociales / École Centrale / Hanoi University of Science and Technology / King Mongkut's Institute of Technology Ladkrabang / University of

Zambia / Addis Ababa University / École Polytechnique de Montréal / Hamad bin Khalifa University / Ljubljana University / Strathmore University / The Research Institute for Humanity and Nature
 [Collaborating organizations] 3 companies, 1 local public body, 1 international organization
 Mitsubishi Research Institute, Inc. / HORIBA, Ltd. / Nissin Electric Co., Ltd. / Miyakojima city / United Nations Industrial Development Organization (UNIDO)

[Number of program graduates (including anticipated number)] 1 (FY 2015), 5 (FY 2016), 5 (FY 2017), 6 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 6 to universities, 9 to private companies, 1 to public research institute, 1 to other

The University of Tokyo



Integrated Human Sciences Program for Cultural Diversity

This program's goal is to nurture creative and pragmatic leaders for the next generation well-versed in the interdisciplinary, international field of integrated human sciences and possessing both the deep specialized knowledge and the global outlook required to make multicultural coexistence a reality as global citizens.

[Contents of Diploma]

1. Major Program Degrees conferred: PhD degrees in Integrated Human Sciences. Completion of "Integrated Human Sciences Program for Cultural Diversity" is noted on the diploma.
 2. Sub-major Program Completion of "Integrated Human Sciences Program for Cultural Diversity" is noted on doctoral diplomas.

A new type of education to make multicultural coexistence a reality

The rapid progression of globalization has exacerbated conflicts between people of different cultures. These conflicts manifest in several ways, and each manifestation presents a problem we must work to solve. Moreover, within such conflicts lies mutual ideals and the hope for a harmonious coexistence between people of different cultures.

Integrated Human Sciences aims to cultivate the knowledge required to solve the plethora of multifaceted issues facing global society. At the root of this field of study, which combines several disciplines focused on the study of humans, is a new type of educational and liberal arts philosophy. The education this program provides is not like conventional passive learning, but rather encourages students who can both understand the modern, globalized world and thrive within it. It is an active type of education that directly links education and creation, dissemination, and action. After obtaining the requisite specialized proficiency, students will use that as a base to cultivate insight and well-roundedness and work with others to discover new issues and generate, disseminate, and implement new values.

With these educational goals in mind, this program aims to produce creative and pragmatic leaders for the next generation well-versed in the interdisciplinary,



A joint workshop between the Asia-Pacific graduate program at Australian National University (ANU) and the Cultural and Historical Linguistics Department

international field of integrated human sciences and possessing both the deep specialized knowledge and the global outlook required to make multicultural coexistence a reality as global citizens.

Theme-based integrated human studies for a more inclusive society

In order to meet the challenges of multicultural coexistence, this program organizes the issues explored by integrated human sciences into a conceptual framework consisting of six themes. They are: value and emotion, race and disparity, migration and borders, media and information, life and environment, and science and technology. These components work together in concert to comprise the knowledge required for this interdisciplinary field, allowing for a multifaceted exchange of ideas that produces the best ideas possible. Furthermore, to ensure these themes are crystallized into clear, tangible results, they will intersect with five regional frameworks. This is



A lecture on cross-border information and media. Talk about "now" and the era of T-K"

required to ensure that the exploration of the thematic issues will be conducted in the context of the real world and lead directly to the proposal and implementation of actionable solutions.

Coursework Details

The Model of Courses Taken by a Master's Student	The Model of Courses Taken by a Newly Enrolled Doctoral Student	The Model of Courses Taken by a Continuing Doctoral Student
14 Credits Required for the Completion of the Program	9 Credits Required for the Completion of the Program	9 Credits Required for the Completion of the Program
Qualifying Examination 2 credits	Industrial-Academic-Government Cooperation Internship / Qualifying Examination 1 credit	Industrial-Academic-Government Cooperation Internship / Qualifying Examination 1 credit
Fieldwork in a Project 2 credits	Internship in Multiple Disciplines / Qualifying Examination 1 credit	Internship in Multiple Disciplines / Qualifying Examination 1 credit
Seminar in a Unit 2 credits	Short-term Study Abroad / Qualifying Examination 1 credit	Short-term Study Abroad / Qualifying Examination 1 credit
Introduction to the Integrated Human Sciences for Cultural Diversity / Literacy / Japanese / Foreign Languages 8 credits	Introduction to the Integrated Human Sciences for Cultural Diversity / Seminars / Fieldworks 6 credits	Seminars / Fieldworks 6 credits

Enrolled students (from Master's program: 5 years; from Ph. D. program: 3 years) take courses on the fundamental concepts behind multicultural coexistence and engage in internship experiences

DATA (FY2018)

[Number of students recruited] 40 a year (FY 2014-2015), 20 a year (FY 2016-2018)
 [Percentage of overseas students and mid-career students (shakajim)] 27% · 5%
 [Matriculated graduate schools, departments, etc.] 2 graduate schools, 6 departments
 (Graduate School of Arts and Sciences) Language and Information Sciences, Interdisciplinary Cultural Studies, Area Studies, Advanced Social and International Studies, Multidisciplinary Sciences

[Number of program graduates (including anticipated number)] 2 (FY 2016), 1 (FY 2017), 1 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 3 to universities

Inquiries: 03-5454-6415 Website: <https://ihs.c.u-tokyo.ac.jp/>

(Graduate School of Interdisciplinary Information Studies) Interdisciplinary Information Studies
 [New graduate schools and departments (etc.) established for the program]
 The IHS program will be launched as a Major Program offered by the Graduate School of Arts and Sciences in FY 2018.

Nagoya University

Women Leaders Program to Promote Well-being in Asia



This program, based on the key concept of “food, health, environmental, and social systems and education” and cultivated through partnerships between the university and international institutions, endeavors to foster globally active women leaders with the ability to understand situations from a comprehensive viewpoint, a high degree of expertise, internationally-mind based upon understanding of multi-cultural differences, and a strong sense of responsibility.

[Contents of Diploma]

Completion of “Women Leaders Program to Promote Well-being in Asia” is noted on doctoral diplomas.

Cultivating women leaders to lead the charge into the next generation

Today, with the need for sustainable societal development and a variety of initiatives more apparent than ever, women are the key to revitalizing Japanese society. It is hoped that women will unleash their potential and individuality to take a more active role in society.

At the same time, the multicultural societies of Asia are at different stages of development, with a number of health issues, gender inequality, and many more waiting to be solved. In particular, in order to solve the common problems in the areas of food, health, and environment, where women have traditionally contributed, the construction of a pan-Asian women’s network that transcends race, nationality, and religion is essential, as is the establishment and nurturing of partnerships.

This program focuses on “food, health, environmental, and social systems and education,” which are intimately tied to the aforementioned issues. In order to develop a diverse curriculum and promote wellbeing, the aim is to cultivate globally active women leaders with the ability to understand situations from a comprehensive viewpoint, a high degree of expertise, internationally-mind based upon understanding of multi-cultural differences, and a strong sense of responsibility.

The foundation of the five-year program is the research and education support platform established by the International Cooperation Center for Agricultural Education and the Center for Gender Equality, as well as the four disciplines of international development studies, educational development studies, agricultural and life sciences, and medical studies (medical and health



On-site training overseas: Students from four disciplines form a team to investigate, do research, and give presentations

sciences). These resources allow scholars from within and outside Japan along with international institutions, private firms, and other globally active parties to contribute to the attainment of integrated knowledge in six main areas: gender comprehension, practical skills, on-site competency, planning abilities, broadness of perspective, and the ability to disseminate.

Providing practical education and a robust support system through partnerships with international institutions

To solve the problems present in international society, it is essential to come into contact with other cultures as early as possible and adopt a broad, international perspective when engaging in multi-disciplinary research. This program provides lectures and training in English and offers five years of practical English training. In addition, through partnerships with schools that have academic exchange agreements with our university, other cooperative universities, UNICEF, the UN Population Fund,



Cross-cultural Talk: By coming together and having discussions, steps can be taken toward achieving well-being throughout Asia

JICA, and other organizations, the program cultivates female leaders equipped with the advanced skills and clear vision needed to achieve well-being throughout Asia. Furthermore, as we believe it is important to make steady progress in overcoming obstacles and solving issues, this program has an advising system that pools resources from four graduate courses, as well as a mentoring system with high value and proven results. This way, we can ensure our students receive the support they need to pursue their careers both while they are enrolled and after they graduate.



An overview of the 5-year program that offers a well-rounded, integrated education. The keys to the curriculum are advanced expertise and diversity.

DATA (FY2018)

[Number of students recruited] About 10 a year
[Percentage of overseas students and mid-career students (shakaijin)] 47% · 55%
[Matriculated graduate schools, departments, etc.] 4 graduate schools, 11 departments/divisions
 (Graduate School of International Development) Department of International and Cooperation
 (Graduate School of Education and Human Development School of Education) Department of Educational Sciences, Department of Psychology and Human Developmental Sciences
 (Graduate School of Bioagricultural Sciences) Department of Forest and Environmental Resources Sciences, Department of Plant

Production Sciences, Department of Animal Sciences, Department of Applied Biosciences
 (Graduate School of Medicine) Department of Comprehensive Medical Science, Department of Nursing, Department of Radiological and Medical Laboratory Sciences, Department of Physical and Occupational Therapy
[Collaborating universities in Japan and overseas] 15 universities
 University of the Philippines / Lund University / Royal University of Agriculture / Diponegoro University / Chulalongkorn University / Royal University of Phnom Penh / Gadjah Mada University / National University of Singapore / National University of Laos / University of the Philippines Los Baños / Vietnam National University, Hanoi / Indian

Institute of Technology Bombay / University of Dhaka / University of Ottawa / United Nations University
[Collaborating organizations]
 1 company, 1 public research institute, 1 governmental agency, 4 international organizations
 Literacy Inc. / JICA (Japan International Cooperation Agency) / MOFA (Ministry of Foreign Affairs) / UNICEF (United Nations Children’s Fund) / UNFPA (United Nations Population Fund) / WB (The World Bank) / ADB (Asian Development Bank)

[Number of program graduates (including anticipated number)] 1 (FY 2017), 3 (FY 2018)
[Main destinations of program graduates (including anticipated destinations)] 3 to universities, 1 to private company

Inquiries: 052-788-6246 Website: <http://www.well-being.leading.nagoya-u.ac.jp>

Hiroshima University

Taoyaka Program for creating a flexible, enduring, peaceful society



Our program aims to cultivate highly trained global leaders to deal with the issues facing less fortunate areas in South Asia and the hilled rural areas in the Chugoku and Shikoku regions. These individuals will deepen their knowledge of the local cultures and issues with the social structure, as well as develop and implement new technology to meet these communities’ needs.

[Contents of Diploma]

Completion of “TAOYAKA Program for creating a flexible, enduring, peaceful society” is noted on doctoral diplomas.

Developing well-trained experts who can strengthen the link between culture, technology, and society

In India, Nepal, Bangladesh, and other South Asian countries, many villages lack local infrastructure such as schools and medical services, and many do not have stable sources of energy, leading to poverty and inequality. Meanwhile, while Japan is a mature society, many depopulated villages struggle to get the health services they need, and many outlying minor islands and hilled rural areas are facing the problems of depopulation and aging. Our program aims to cultivate highly trained global leaders to deal with the issues facing regions such as these. These individuals will deepen their knowledge of the local cultures and issues with the social structure, as well as develop and implement new technology to meet these communities’ needs.

On-site reverse innovation

Advanced technology is progressing by the day and spreading throughout the world. However, it takes time for such technology to reach the remote areas that need it the most, and there is no guarantee that technology devised in developed countries will be the best fit for less fortunate areas in terms of performance and function. These disadvantaged regions require the development of technology that can be immediately put to local use and seamlessly integrates into locals’ lifestyles. This means,



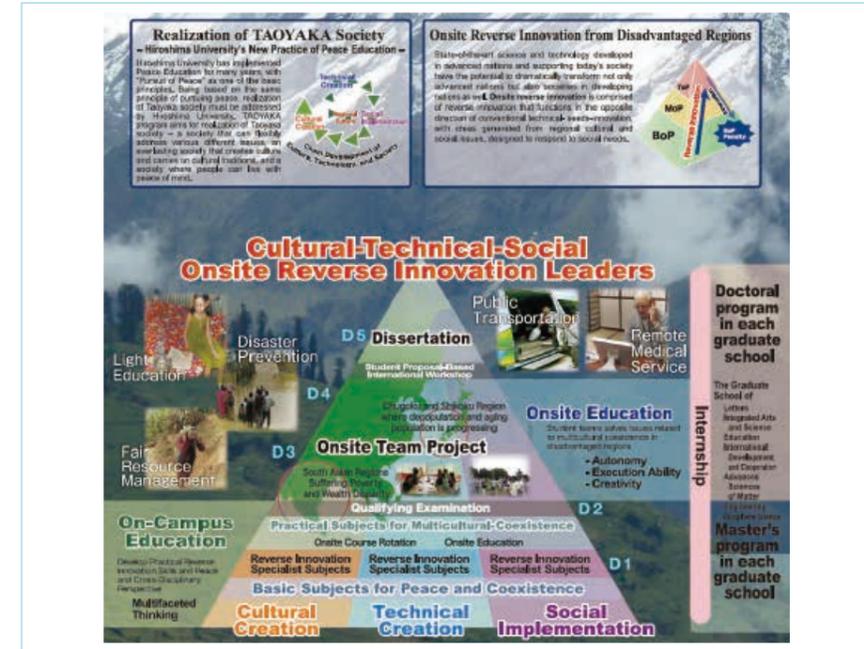
Group work allows students of different nationalities and specialties to collaborate on common areas

for example, low-quality but cheap technology, or low-tech but sturdy technology. There is no one-size-fits-all solution for all cultures and societies. Rather, technology must be developed that fits each region’s individual cultural and social needs. The “TAOYAKA Program for Creating a Flexible, Enduring, Peaceful Society” aims to work closely with regions facing these issues to figure out what is needed and develop technology that can effectively lead these societies in the right direction. Through “on-site reverse innovation,” program participants will achieve the joint development of local culture and advanced technology.



Conducting interviews with the locals in Bangladesh

A student proposal support-based curriculum



The program facilitates multi-disciplinary educational opportunities of the entire university for flexibility in meeting regions’ needs while also providing on-site proposal support-based education

DATA (FY2018)

[Number of students recruited] 18 a year (FY 2013-2017), 9 a year (FY 2018-) (Including admitted in 3rd year)
[Percentage of overseas students and mid-career students (shakaijin)] 80% · 49%
[Matriculated graduate schools, departments, etc.] 7 graduate schools, 12 majors
 (Graduate School of Letters) Humanities (Graduate School of Integrated Arts and Sciences) Integrated Arts and Sciences (Graduate School for International Development and Cooperation) Development Science, Educational Development and Cultural and Regional Studies (Graduate School of Engineering) System Cybernetics, Civil and Environmental Engineering, Mechanical Science and Engineering

(Graduate School of Advanced Sciences of Matter) Semiconductor Electronics and Integration Science, Quantum Matter, Molecular Biotechnology (Graduate School of Biosphere Science) Environmental Dynamics Management (Graduate School of Education) Program in Education and Learning Science
[Collaborating universities in Japan and overseas] 8 universities
 LBJ School of Public Affairs, The University of Texas at Austin / Indian Institute of Technology Delhi / Indian Institutes of Management, Ahmedabad / Indian Institute of Technology Hyderabad / Indian Institute of Engineering Science and Technology, Shibpur / Indian Institute of Technology Bombay / Birla Institute of Technology and Science Pilani / Kumaon University

[Number of program graduates (including anticipated number)] 4 (FY 2017), 8 (FY 2018)
[Main destinations of program graduates (including anticipated destinations)] 3 to universities, 3 to private companies, 2 to public research institutes, 1 to governmental agency

Inquiries: 082-424-6152 Website: <http://taoyaka.hiroshima-u.ac.jp/english/>

Kyoto University

Inter-Graduate School Program for Sustainable Development and Survivable Societies



- 1) human resources filled with the sense of mission and ethics necessary to overcome crises the human being is facing and to enrich human society and contribute to its well-being
- 2) human resources with sound judgment and energy to take actions based on expertise, a wide vision, knowledge and wisdom

[Contents of Diploma]

- (1) Completion of "Inter-Graduate School Program for Sustainable Development and Survivable Societies" is noted on doctoral diplomas. (Regarding Graduate School of Informatics, since FY 2016)
- (2) Degrees conferred: PhD (Regarding Graduate School of Informatics)

Practical Interdisciplinary Science with Collective Wisdom That Contribute to Safety and Security of Global Society

The Inter-Graduate School Program for Sustainable Development and Survivable Societies program is a pioneering project offered via a partnership between nine graduate schools and three institutes. This program trains tough leaders, and is part of a new interdisciplinary academic field on safety and security named Global Survivability Studies (GSS). It is a five-year educational program leading directly to a doctoral degree. Large-scale natural disaster, man-made disaster and accidents, environmental changes such as degradation and pollution, as well as other sources of danger and social unrest including food security threaten the safety and security of the world today. This program aims to train the leaders of the future, who address these challenges using professional skills, personal attractiveness, a wide social view, and group wisdom.

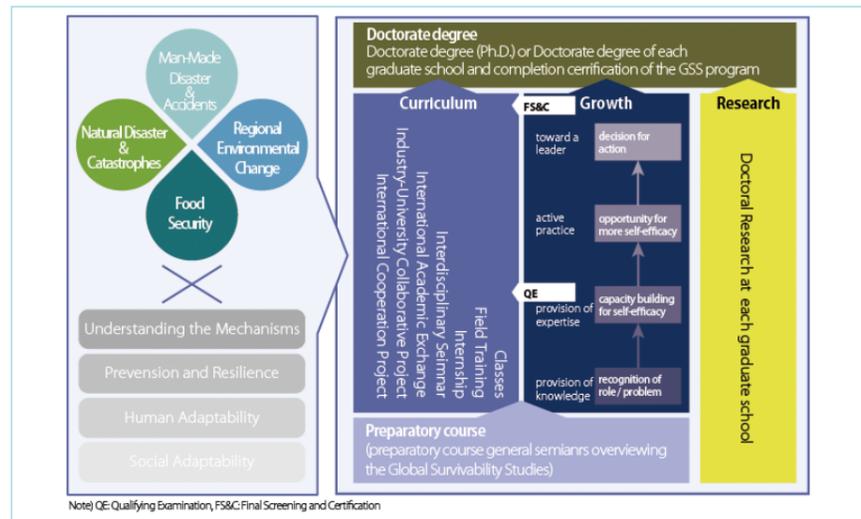
students are required to complete the practical learning courses specified by the program (see Diagram 1). Students acquire knowledge from multiple disciplines, implement field training to face real-world problems, and independently plan and enact research with related organizations. Through these kinds of activities, students are exposed to experiences from a wide range of different fields, helping them raise their general abilities at the same time as they are increasing the depth of their own specialization. Thus, the program cultivates leadership for action on the basis of practical research and pure research. In addition, the University provides an environment where students can interact with professors and other students, via offerings such as student body planning in monthly homerooms, the GSS Salon, where numerous issues in global survivability studies are discussed, the student association, which brings suggestions and cooperation from students to the program, and the student lounges where students can gather. Fifty-six specialists from Japan and abroad are invited as international advisors for the annual Symposium, which serves as a forum for academic and interpersonal exchange. Furthermore, the ePortfolio system known as GSSfolio records each student's academic achievements, providing a framework for revisiting one's accomplishments. Through these exchanges and the active use of collective wisdom, the program aims to train human resources with a solid specialist base and a wide overarching understanding.



GSS Symposium 2017 (Theme: Lessons Learned and Future Endeavors)

academic and interpersonal exchange. Furthermore, the ePortfolio system known as GSSfolio records each student's academic achievements, providing a framework for revisiting one's accomplishments. Through these exchanges and the active use of collective wisdom, the program aims to train human resources with a solid specialist base and a wide overarching understanding.

Diagram 1: GSS Program Course Overview



An integrated five-year program training global leaders in safety and security, under the framework of Global Survivability Studies.

Deep Specialization, Broad Understanding

In order to train these leaders, the program places importance on collaboration and exchange with students and instructors from various differing disciplines. One way in which the program achieves this is by offering a curriculum designed for diverse learning. In parallel with their own academic research in their own graduate school,



The GSS entrance ceremony

DATA (FY2017)

[Number of students recruited] 20 a year
 [Percentage of overseas students and mid-career students (shakajin)] 42% - 51%
 [Matriculated graduate schools, departments, etc.] 9 graduate schools, 25 departments; 3 research institutes (Graduate School of Education) Department of Education, Department of Clinical Education (Graduate School of Economics) Department of Economics (Graduate School of Science) Division of Earth and Planetary Sciences (Graduate School of Medicine) Department of Medicine and Medical Science, School of Public Health (Graduate School of Engineering) Department of Civil and Earth Resources Engineering, Department of Urban Management, Department of Environmental Engineering, Department of Architecture and Architectural Engineering, Department of Mechanical engineering and Science (Graduate School of Agriculture) Division of Agronomy and Horticulture

[Number of program graduates (including anticipated number)] 1 (FY 2015), 10 (FY 2016), 11 (FY 2017)
 [Main destinations of program graduates (including anticipated destinations)] 8 to universities, 3 to private companies, 2 to public research institutes

Science, Division of Forest and Biomaterials Science, Division of Applied Life Sciences, Division of Applied Biosciences, Division of Environmental Science and Technology, Division of Natural Resource Economics, Division of Food Science and Biotechnology (Graduate School of Asian and African Area Studies) Division of Southeast Asian Area Studies, Division of African Area Studies, Division of Global Area Studies (Graduate School of Informatics) Department of Social Informatics, Department of Communications and Computer Engineering (Graduate School of Global Environmental Studies) Doctorate Program in Global Environmental Studies, Doctorate Program in Environmental Management (Disaster Prevention Research Institute) (Research Institute for Sustainable Humanosphere) (Center for Southeast Asian Studies)

[Collaborating universities in Japan and overseas] 4 universities Sajah Kuala University / School of Planning and Architecture, Bhopal / Kumamoto University / Fukui Prefectural University
 [Collaborating organizations] 24 companies, 2 international organizations JFE Steel Corporation / EduLab / ANA HOLDINGS INC. / LIP Asset Management Limited. / APRES PARTNERS / DAIKIN INDUSTRIES, Ltd. / Toray Industries, Inc. / Panasonic Corporation / Mitsubishi Heavy Industries, Ltd. / Mitsubishi Electric Corporation / Murata Manufacturing Co., Ltd. / DMG MORI Co., Ltd. / Teijin Limited / Dai Nippon Printing Co., Ltd. / Sumitomo Forestry Co., Ltd. / Santyoro Holdings Limited / NEC Corporation / TOMOEGAWA CO., LTD. / Zeon Corporation / Roland Corporation / Komatsu Ltd. / YANMAR Co., Ltd. / Fuji Xerox co., Ltd. / HORIBA, Ltd. / UNESCO / UNEP

Inquiries: 075-762-2163/2164 Website: <http://www.gss.kyoto-u.ac.jp/>

Tohoku University

Inter-Graduate School Doctoral Degree Program on Science for Global Safety



This joint Master's and Doctoral program aims to cultivate leaders well-versed in both the humanities and the sciences who are prepared to contribute to global safety initiatives by guarding lives, society, and industry from disasters such as the Great East Japan Earthquake.

[Contents of Diploma]

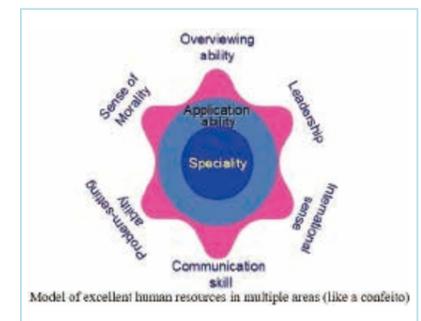
Completion of "Inter-Graduate School Doctoral Degree Program on Science for Global Safety" is noted on doctoral diplomas.

Arts, sciences, and engineering fusion education with participation by many departments

— Education led by the International Research and Institute of Disaster Science (IRIDeS)

The Great East Japan Earthquake and the ensuing tsunami caused immense damage to Tohoku district geographically, socially and globally. Long-term restoration is necessary. The social and industrial infrastructures of the damaged areas have not yet recovered substantially. Furthermore, the great transformation of energy policy, including the resumption of nuclear power plants, needs serious discussion.

One of the features of this program is interdisciplinary advanced education and research based on the "Practical disaster-prevention" courses provided by the newly established International Research Institute of Disaster Science (IRIDeS). Cultivation of human resources is performed through activities at disaster restoration sites and of worldwide researches with participation of IRIDeS, Graduate Schools of Engineering, Science, Art and Letters, Environmental Studies and so on. Furthermore we will extend this program to cultivate human resources for the issues common to human society such as climate change, energy security, accidents of huge system such as nuclear power plants.



Cultivation of "hexagonal" human resources with diverse capabilities of expertise, development capability in various fields and functions necessary to support leadership



Cultivating global leaders through interdisciplinary education through science and humanity that includes 23 majors from 12 departments

Education to "understanding", "creating" and "living in" safety and security

— Aiming at cultivation of all-round human resources called "Konpeito" model

In this program, education is provided by cooperation with researchers of science, engineering and humanities and social science. The three courses of "Natural disaster science", "Safety and security engineering" and "Human science" create all-round players by equipping human resources with the following capabilities.

- A core of professional capability through cutting-edge

research and applied capability for the resolution of diverse tasks.

- The ability to set and follow independent paths for task setting, problem resolution, research and development, business development, grand design, and the like.
- The ability to provide oversight, to prioritize events and to convey their own ideas accurately to others.
- The international scene.
- Ethical views, showing leadership responsibilities.



At the Center for Education and Research on Science for Global Safety, students work for subjects that transcend any single discipline

DATA (FY2018)

[Number of students recruited] 30 a year (FY 2013-2015), 20 a year (FY 2016), 15 a year (FY 2017), 10 a year (FY 2018)
 [Percentage of overseas students and mid-career students (shakajin)] 29% - 0%
 [Matriculated graduate schools, departments, etc.] 8 graduate schools, 23 departments (Graduate school of Arts and Letters) Humane Studies, Historical Studies, Human Sciences (Graduate school of Law) Legal and Political Studies (Graduate school of Economics and Management) Economics and Management

[Number of program graduates (including anticipated number)] 9 (FY 2016), 22 (FY 2017), 19 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 14 to universities, 19 to private companies, 6 to public research institutes, 2 to governmental agencies, 3 to technical colleges

(Graduate school of Science) Astronomy, Geophysics, Earth Science (Graduate school of Engineering) Mechanical Systems Engineering, Finemechanics, Robotics, Aerospace Engineering, Quantum Science and Energy Engineering, Electrical Engineering, Chemical Engineering, Civil and Environmental Engineering, Architecture and Building Science, Management Science and Technology (Graduate school of Information Sciences) Human-Social Information Sciences, Applied Information Sciences (Graduate school of Environmental Studies) Environmental Studies for Advanced Society, Frontier Sciences for Advanced Environment (Graduate school of Biomedical Engineering) Biomedical Engineering

[Collaborating universities in Japan and overseas] 1 university Stanford University
 [Collaborating organizations] 1 company, 2 public research institutes, 1 local public body Dowa Holdings Co., Ltd. / U.S. Geological Survey / Japan Aerospace Exploration Agency / Board of Education, Miyagi Prefecture

Inquiries: 022-795-4946 Website: <http://g-safety.tohoku.ac.jp/>

University of Kochi*

*Jointly implementing universities:
University of Hyogo, Tokyo Medical and Dental University, Chiba University, Japanese Red Cross College of Nursing

Disaster Nursing Global Leader Degree Program



With human security as the goal, DNGL program aims to produce disaster nursing professionals who can support people's health even during natural disasters and propose policies for healthy living. Program participants will learn to adopt global mindset to make a safe and secure society a reality and build industrial-academic-government partnerships to revolutionize the current system.

[Contents of Diploma]
Degrees conferred: PhD degrees in Nursing (Disaster Nursing Global Leader)

Creating professional nurses who can support safety and security for all

While Japan's chief disaster concern is earthquakes, we cannot forget about the man-made disasters such as war and conflict as well as droughts and floods whose effects can be felt for months or years. The DNGL's global network offers practical internships opportunities that give students a chance to study at international institutions. By expanding our scope beyond Japan, we train nurses who can adapt to any situation to help individuals, families, groups, regions, and countries. Nursing aims not only to address physical ailments, but also provide holistic care that addresses psychological and social needs as well. We wish to train nurses to utilize their strengths to provide support in disaster, which cause physical, psychological, and social adversity among people.

A partnership of five universities in national, public, and private academic institutions providing leadership in disaster nursing

This program was formed as a partnership among five universities, with a focus on distance learning via lectures by taking advantage of information networks, allowing teachers and students across the nation to connect in virtual classrooms. This promotes bidirectional learning by way of interactive, dynamic classes, seminars,



World Society of Disaster Nursing

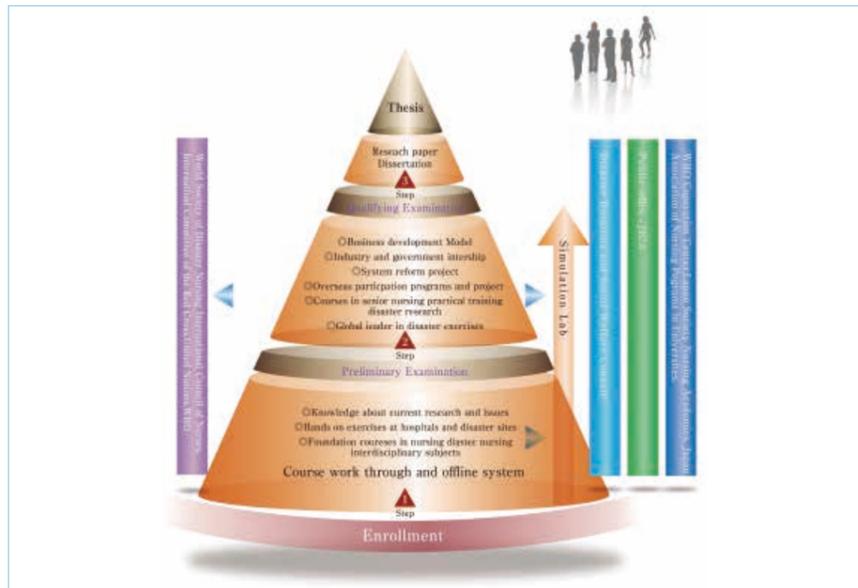
and practical training. By offline, the program utilizes the multifaceted global network provided by its five partner institutions to provide education not only from faculties, but also disaster experts in partner organizations. With disaster relief as the research theme, the program aims to cultivate professors who can learn relevant research methods with a solid foundation in ethics and apply them in the fields. In order to ensure that the fruits of their research serve as the stepping stone for actual policies, students are given full support as they work to contribute to their chosen countries and regions. Trainings and internship activities of, our students have contributed to 53 academic organizations and 42 organizations in industry and government that are actively engaged in research and operations in the face of the dangers made apparent by the Great East Japan Earthquake. We hope to continue to contribute to the further development of these research and operational efforts. It is with this speed and



Kumamoto earthquakes relief activities by DNGL students

dynamism that the DNGL and individual students in our program are working to prepare for future disasters and actively lend their talents to industrial, government, and academic institutions.

An educational environment that cultivates global leaders



The first postgraduate program in Japan offered in form of a partnership among five national, public, and private academic institutions. By pooling their resources, they help students obtain interdisciplinary competence, global mindset, and academic vigor.

Inquiries: 088-847-8815 Website: <http://www.dnjl.jp/japanese/>

DATA (FY2018)

[Number of students recruited] 10 a year
[Percentage of overseas students and mid-career students (shakajin)] 13% - 48%
[Matriculated graduate schools, departments, etc.] 5 graduate schools, 5 majors
University of Kochi (Graduate School of Nursing) / Cooperative Doctoral Program for Disaster Nursing, University of Hyogo (Graduate School of Nursing Art & Science) / Cooperative Doctoral Program for Disaster Nursing, Tokyo Medical and Dental University (Graduate School of Health Care Sciences) / Cooperative Doctoral Program for Disaster Nursing, Chiba University (Graduate School of Nursing) / Cooperative Doctoral Program for Disaster Nursing, Japanese Red Cross College of Nursing (Graduate School of Nursing) / Cooperative Doctoral Program for Disaster Nursing
[New graduate schools and departments (etc.) established for the program]
Cooperative Doctoral Programs for Disaster Nursing in five universities: Graduate School of Nursing, University of Kochi; Graduate School of Nursing Art & Science, University of Hyogo; Graduate School of Health Care Sciences, Tokyo Medical and Dental University; Graduate School of Nursing, Chiba University; Graduate School of Nursing, Japanese Red Cross College of Nursing, were newly established in FY 2014.

[Number of program graduates (including anticipated number)] 4 (FY 2018)
[Main destinations of program graduates (including anticipated destinations)] 3 to universities, 1 to medical doctor

[Collaborating universities in Japan and overseas] 53 universities
University of Indonesia / University of the Philippines / The Thai Red Cross College of Nursing / The Hong Kong Polytechnic University / Gadjah Mada University / Tohoku University / Nagoya University / The University of Sheffield / Seirei University of Applied Sciences / University of Tampere / The Swedish Red Cross University College / Institut et Haute Ecole de la Sante La Source / Ca' Foscari University of Venice / Tsinghua University of Beijing / Beijing Union University / Sichuan University / Fujian University of Traditional Chinese Medicine / Aichi Medical University / Dalian Medical University / China Medical University / Seoul National University / Gyeongsang National University of Science and Technology / Mokpo National University / Chung-ang University / Wenzao Ursuline University of Languages / National Yang Ming University / Andalus University / Satya Wacana Christian University / Ubon Ratchathani University / Chulalongkorn University / University of Health Sciences / Tribhuvan University / University of Malaysia Sabah / Ateneo de Manila University / James Cook University / University of California, San Francisco / California State University, Northridge / Elms College / University of Washington / University of Pennsylvania / University of Hawaii / University of Michigan / University of Alabama / Miyagi Hospital / Koryo Hospital / San Diego / Icahn School of Medicine at Mount Sinai / Paez University / University of Prince Edward Island / Hiroaki University / Fukushima Medical University / Kyoto University / Hiroshima University / Kochi University

of Technology / Kochi University / Japanese Red Cross Kyushu International College of Nursing
[Collaborating organizations] 17 companies, 3 public research institutes, 12 local public bodies, 2 international organizations, 6 hospitals, 2 others
Laerdal / Nitto Research Institute and Consulting / Kochi Health Sciences Center / Mitsubishi Estate / Shimizu Corporation / Miyagi Nursing Association / Kochi Nursing Association / Japanese Red Cross Society / Philippine Red Cross / Philippine Nurses Association / Nursing Association of Nepal / Geriatric Health Services Facility Botanen / Chiyoda Medical Association / Tonarigumi around Tokyo station / Chiyoda City Social Welfare Council / Hong Kong Red Cross / Bunkyo City Social Welfare Council / National Institute of Radiological Sciences / JICA / Centre for Teaching and Research in Disaster Medicine & Traumatology / Kochi Prefectural Office / Kochi City Office / The Hyogo Business and Cultural Center / Yawata Health Center / Nishihara Village Office / Chiyoda Ward Office / Tomioka Town Office / Nagao Area Administrative Committee / Mashiki Town Office / Aso Village Office / Sole / Etogawa-ku Kodomomirai / WHO / International Federation of Red Cross and Red Crescent Societies / Japanese Red Cross Medical Center / Miyaki Hospital / Koryo Hospital / Japanese Red Cross Kumamoto Hospital / National Hospital Organization Niigata Hospital / National Hospital Organization Disaster Medical Center / International Recovery Platform (IRP) / IcaMD

The University of Tokyo



Advanced Leading Graduate Course for Photon Science (ALPS)

As a collaboration between the School of Science and the School of Engineering at the University of Tokyo, this program has its foundations in advanced research in fundamental science fields that are connected through cutting-edge photon science. It fosters PhD graduates with the ability to apply interdisciplinary skills and knowledge to contribute to the sustainable development of human society on a global scale.

[Contents of Diploma]
Degrees conferred: PhD degrees in either Science or Engineering. Completion of "Advanced Leading Graduate Course for Photon Science" is noted on the diploma.

Cultivating global leaders who will solve problems facing humanity

We aim to cultivate international leaders who will contribute to the sustainable development of human society and solve problems in fields throughout industry, academia, and government. We provide students with fundamental scientific skills, transferable skills, and the skills to use knowledge in transdisciplinary academic fields. The acceleration of globalization has led to the emergence of many problems that humanity must tackle as a whole, including resource depletion, environmental destruction, global financial instability, and poverty, to name a few. Overcoming these global problems requires a diverse group of individuals to share their knowledge from many different fields. Through this process, we expect new knowledge and skills to be created in Japan that will contribute to the sustainable development of human society. We thus aim to cultivate "Knowledge Professionals" who will lead these types of activities.

Transcending field boundaries with photon science

To cultivate human resources who will lead the way toward solutions to the problems facing humanity, we must train individuals to develop the intellect required to grasp the essence of the issue in hand and the skills to apply this intellect in solving these problems. We use photon science as the means to provide students



Through on-campus lectures, experiments, and practical classes led by companies involved in cutting-edge photon science technology, course students learn how corporations view research and development

with an interdisciplinary perspective. Photon science is both a cutting-edge scientific field that has seen remarkable development in recent years and one with fundamental/cross-disciplinary scientific principles that run through a range of academic areas. This type of cutting-edge, fundamental scientific research, in which fierce competition between global elites takes place on a daily basis, is ideally suited to forging the skills needed to logically understand the essence of a problem and to search for solutions using a broad perspective.

As described below, we have established an environment that enables students from across existing departments and fields to work together, grasp the essence of problems from an interdisciplinary perspective, and develop the ability to use knowledge to reach solutions to these problems.

1. Multiple Supervisor System: In addition to their main supervisor, a secondary supervisor provides each course student with guidance and advice regarding their research and future career path.

2. In-depth Course Work: Through experiments and practical classes led by engineers from 22 companies involved in cutting-edge photon science technology as well as applied course work taught by individuals from international companies in the same field, course students learn how fundamental research is linked to industrial



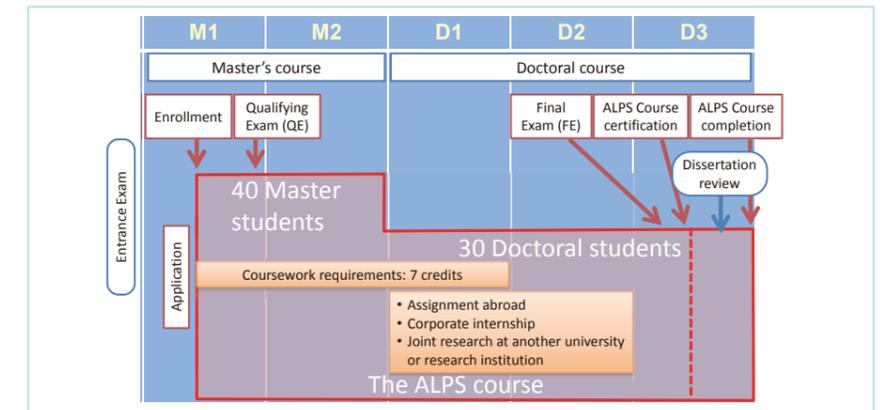
Pursuit of knowledge: Discussions with winners of the Nobel Prize in Physics - naturally, English is used for questions and answers

applications.

3. Off-campus Activities: Course students are required to take part in one of the following to broaden their perspective by undertaking activities outside of the university lab environment: an assignment abroad, a corporate internship, or collaborative research at another university in Japan or abroad.

4. Integrated Support from Masters to PhD: We provide sufficient financial support to course students to create an environment in which talented students can proceed to the PhD course and devote themselves to research without worry.

ALPS Program Overview



Inquiries: 03-5841-4340 Website: <http://www.s.u-tokyo.ac.jp/en/current/ALPS>

DATA (FY2017)

[Number of students recruited] 40 a year
[Percentage of overseas students and mid-career students (shakajin)] 10% - 1%
[Matriculated graduate schools, departments, etc.] 2 graduate schools, 4 departments
(Graduate School of Science) Department of Physics, Department of Chemistry
(Graduate School of Engineering) Department of Applied Physics, Department of Electrical Engineering and Information Systems

[Number of program graduates (including anticipated number)] 1 (FY 2013), 25 (FY 2014), 34 (FY 2015), 46 (FY 2016), 44 (FY 2017)
[Main destinations of program graduates (including anticipated destinations)] 42 to universities, 34 to private companies, 27 to public research institutes, 1 to governmental agency, 1 to other

[Collaborating organizations] 23 companies, 1 public research institute
Lumentum LLC / Canon Inc. / Hamamatsu Photonics K.K. / Mitsubishi Electric Corporation / Aisin Seiki Co., Ltd. / Nikon Corporation / SIGMAKOKI Co., Ltd. / V-Technology Co., Ltd. / Ricoh Co., Ltd. / Yokogawa Electric Corporation / Fujifilm Corporation / Nichia Corporation / Nippon Telegraph and Telephone Corporation / OMRON Corporation / OMRON LaserFront Inc. / Ushio Inc. / Olympus Corporation / Nippon Electric Glass Co., Ltd. / NEC Corporation / Mitsubishi Chemical

Corporation / Toshiba Corporation / Showa Optronics Co., Ltd. / Furukawa Electric Co., Ltd. / RIKEN

Hiroshima University

Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster



This program fosters global leaders (Phoenix Leaders) with solid knowledge, practical skills and confidence, whose capacity for judgment and taking appropriate action in the circumstances surrounding a radiation disaster, will allow them to lead the recovery of affected areas with a clear philosophy and innovative thinking drawn from across many different disciplines.

[Contents of Diploma]

Completion of "Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster" is noted on doctoral diplomas.

Fostering "Phoenix Leaders" with multidisciplinary knowledge

As a university founded in the first city to suffer an atomic bombing, Hiroshima University has been supporting the city's rehabilitation from atomic bomb damage, providing medical care and treatment for the survivors, conducting environmental and other research from the field of the humanities and social sciences since 1945. The accident at the Fukushima Daiichi Nuclear Power Plant that resulted from the Great East Japan Earthquake of March 11, 2011, gave a great impact and shock not only on Fukushima Prefecture and Northeast Japan, but also on the whole country and the rest of the world. Although industries and governments make great efforts so that such disasters never occur again, the medical and industrial use of radioactive materials is on the rise, and the number of nuclear power plants in developing countries is increasing rapidly in the 21st century, making it an absolute necessity to ensure proper preparedness for radiation accidents.

Accidents, such as Fukushima, and even smaller ones, have made the fragility of the current radiation safety systems apparent. In addition, recent instabilities in international affairs have created the threat of nuclear terrorism. However, despite the major risks that these threats pose, the need to educate human resources with the skills to respond to radiological disasters has not been satisfied on a global scale. Our "Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster" incorporates the enormous experience of Hiroshima University over the years, in order to nurture "Phoenix Leaders." The highly specialized multidisciplinary knowledge that these future global leaders have, will serve them as a solid foundation in their decision making, and together with their accumulated practical skills, will allow them to respond appropriately to radiation accidents, to



During a Short-term Fieldwork students visit temporary housing in Minamisoma and interact personally with local residents

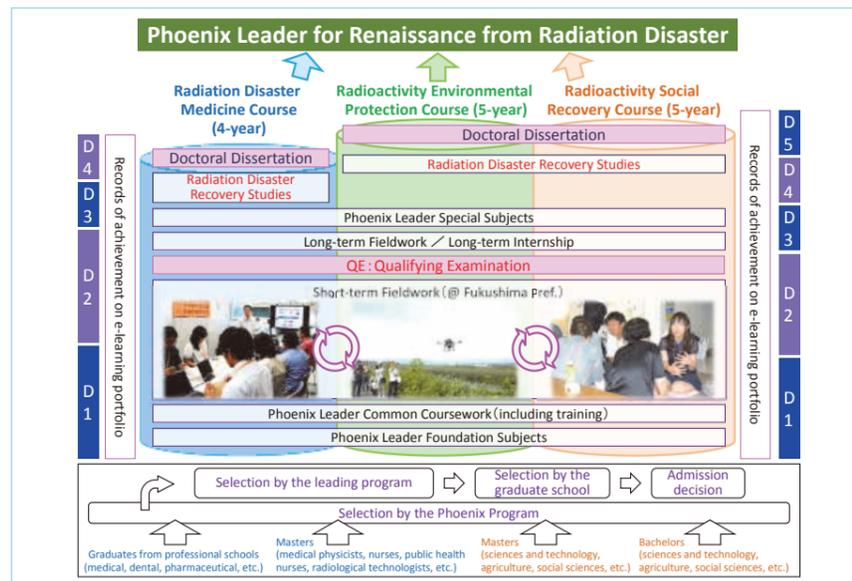
lead recovery efforts, to assess and manage risks, and to bring peace of mind to countless communities across the globe.

Growing Capabilities required for "Phoenix Leaders"

The program consists of the following three specialized courses of study: "Radiation Disaster Medicine Course," "Radioactivity Environmental Protection Course," and the "Radioactivity Social Recovery Course". The courses endow the future "Phoenix Leaders" with a range of abilities, know-how and coping skills that allows them to successfully deal with the challenges they may encounter in a radiation disaster.

This program seeks to develop human resources through three key capabilities required for "Phoenix Leaders": [1] Global skills: to be able to exhibit leadership in an international setting; [2] Management skills: to be able to gather a scientific understanding of the situation and

Curriculum overview



In addition to a broad range of multidisciplinary knowledge, the program aims to foster practical skills through internships and field-works.



During an Internship at the International Atomic Energy Agency (IAEA)

lead the way to achieving a consensus for improving the circumstances; [3] Interdisciplinary skills: to be able to observe the situation from a bird's-eye perspective, based on broad knowledge from across different disciplines, and apply it where and when it is needed. To add to the theoretical knowledge, and build practical skills, the program offers to the enrolled students opportunities such as "field-work", "internships", "field visit", etc.

Nagoya University

Leadership Development Program for Space Exploration and Research



This program aims to foster global leaders who can expand the utilization of outer space and possess a firm fundamental knowledge with broad perspectives and advanced expertise as core qualities. Combined with skills in planning, management and execution, problem-solving, and international communication, the students will lead the advance for space innovation.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Science, Engineering, Environmental Studies, or Information Science. Completion of "Leadership Development Program for Space Exploration and Research" is noted on the diploma.

Creating global leaders who will expand the benefits space exploration provides

Outer space is the last great frontier for humanity and the key to its continued progress. The push to venture into such a harsh environment stimulates development of cutting-edge technologies and industrial innovations. Space exploration requires expertise in various fields of science and engineering, and effective combinations of diverse approaches in those fields. It is for this reason that highly skilled leaders active on the global stage with broad knowledge are desired to explore this final frontier. Taking advantage of the location of Nagoya University, proximity to the centre of the Japanese aerospace industry, this program aims to develop global leaders who can integrate advanced technologies and knowledge related to space exploration with broad visions, and utilize them in industries. Creation of a network of such leaders in next-generation industries will advance and expand the utilization of space technologies and infrastructures that improve people's daily lives.



Performing a vibration test on the structure of a student-designed instrument as part of the ChubuSat program

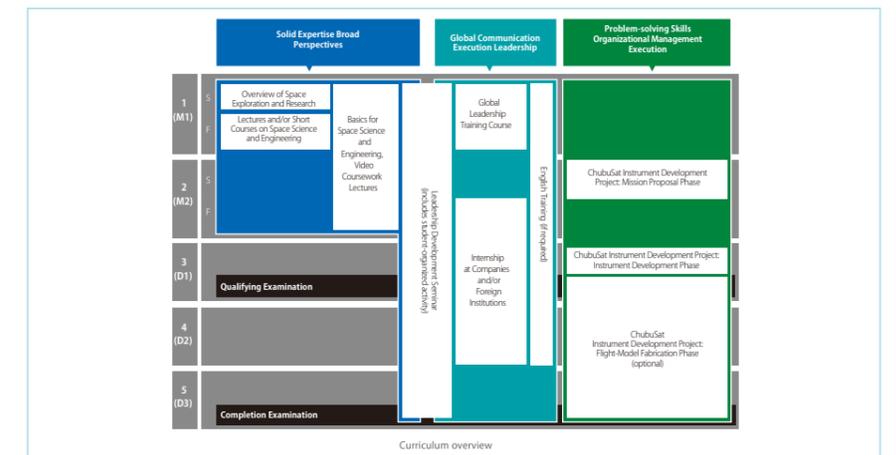
Leader training with student activities and exercising leadership

The program emphasizes growth through personal experience. The ChubuSat instrument development projects are at the core of this effort. Through these projects, students will gain practical experience in space development and utilization with the ChubuSat satellite developed by Nagoya University and its industrial partners. Rather than following a predetermined lab course, students from various disciplines will instead form teams of five to eight and throw themselves into projects, learning to overcome their failures to design and execute a project. This will allow students from different disciplines to associate with one another as well as cultivate the project planning skills, organization management skills, problem-solving skills, and other skills necessary to become industrial leaders. One of student-proposed mission among ChubuSat projects was implemented in ChubuSat-2 and successfully launched into an orbit.



Group discussion about social issues as part of a student-led project

In addition, through an approximately three-month internship, students can experience working in a global environment through overseas research institutes and directly improve their international communication skills. And by experiencing an actual industrial work environment, students can expand their vision and hone their practical skills, which is sure to come in handy for their careers.



A curriculum with a focus on the expertise and practical skills required from leaders in space exploration

DATA (FY2017)

[Number of students recruited] 10 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 60% · 10%
 [Matriculated graduate schools, departments, etc.] 8 graduate schools, 16 majors
 (Graduate School of Biomedical & Health Sciences) Biomedical Sciences, Health Sciences
 (Graduate School of Integrated Arts and Sciences) Integrated Arts and Sciences
 (Graduate School of Letters) Humanities

[Number of program graduates (including anticipated number)] 2 (FY 2016), 11 (FY 2017)

[Main destinations of program graduates (including anticipated destinations)] 4 to universities, 1 to private company, 1 to public research institute, 1 to governmental agency, 2 to medical doctors, 4 others

Inquiries: 082-424-4689 Website: <http://phoenixprogramlp.hiroshima-u.ac.jp/>

(Graduate School of Education) Psychology, Education and Learning Science
 (Graduate School of Social Sciences) Management
 (Graduate School of Science) Physical Science, Chemistry, Mathematical and Life Science, Biological Science
 (Graduate School of Engineering) Mechanical System Engineering, Mechanical Science and Engineering, Civil and Environmental Engineering
 (Graduate School of Biosphere Science) Department of Biofunctional Science and Technology, Department of

Environmental Dynamics and Management
 [Collaborating universities in Japan and overseas] 4 universities
 Fukushima University / Fukushima Medical University / Tohoku University / Nagasaki University
 [Collaborating organizations] 1 company, 1 public research institute
 Radiation Effects Research Foundation / National Institutes for Quantum and Radiological Science and Technology

DATA (FY2018)

[Number of students recruited] 30 a year (FY 2012-2013), 20 a year (FY 2014-2018)
 [Percentage of overseas students and mid-career students (shakaijin)] 31% · 0%
 [Matriculated graduate schools, departments, etc.] 2 graduate schools, 2 divisions
 (Graduate School of Science) Division of Particle and Astrophysical Science
 (Graduate School of Engineering) Division of Aerospace Engineering

[Number of program graduates (including anticipated number)] 7 (FY 2015), 11 (FY 2016), 10 (FY 2017), 12 (FY 2018)

[Main destinations of program graduates (including anticipated destinations)] 18 to universities, 16 to private companies, 6 to public research institutes

Inquiries: 052-789-2930 Website: <http://www.frontier.phys.nagoya-u.ac.jp/index.html>

[Collaborating universities in Japan and overseas] 8 universities
 The University of Oxford / The Ohio State University / The University of California, Berkeley / The University of Colorado / The University of Seoul / The University of Michigan / Michigan State University / The University of Leicester

[Collaborating organizations] 6 companies
 Mitsubishi Heavy Industries, Ltd. / Mitsubishi Electric Corporation / NEC / Toyota Motor Corporation / Hamamatsu Photonics K.K. / Boeing

Waseda University

Leading Graduate Program in Science and Engineering



This five-year program aims to develop science and engineering specialists with outstanding scientific expertise in cutting-edge specialties and equip them with the ability to proactively pursue and achieve world-leading results. Students will learn to tackle complex problems such as energy and contribute solutions to global issues.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Science or Engineering. Completion of "Department of Advanced Science and Engineering" is noted on the diploma.

Cultivating next-generation leaders in energy

In order to produce experts who can address complicated issues and work toward global solutions, this program focuses on the development of three main areas.

Firstly, fields such as physics, chemistry, electronics, and life sciences form the foundation of the next-generation research we collectively term "energy science and engineering studies." Students learn to approach their specialties through a grounding in energy science and engineering, allowing them to flexibly integrate what they learn into their research.

Secondly, the university's Graduate School of Political Science offers a journalism course customized for science and engineering students, and the "Super Technology Officer" management design course features lectures from leading experts in industry and government. The course facilitates on-site training at energy-related organizations so students are able to appraise the needs of society and industry. This humanities-science focus combined with the industry-government-academic partnership allows students to cultivate the information-gathering and transmission skills that link society and research.

Thirdly, after strengthening their knowledge of technical English, students are dispatched abroad for three months to proceed collaborative research at an overseas research institute, and they spend another three months interning at a company. Students learn to transcend the barriers of specialization and cultural background, build trust with people, and learn teamwork. This builds initiative and gives them the tools to get things done.

By improving their skills in these three areas through



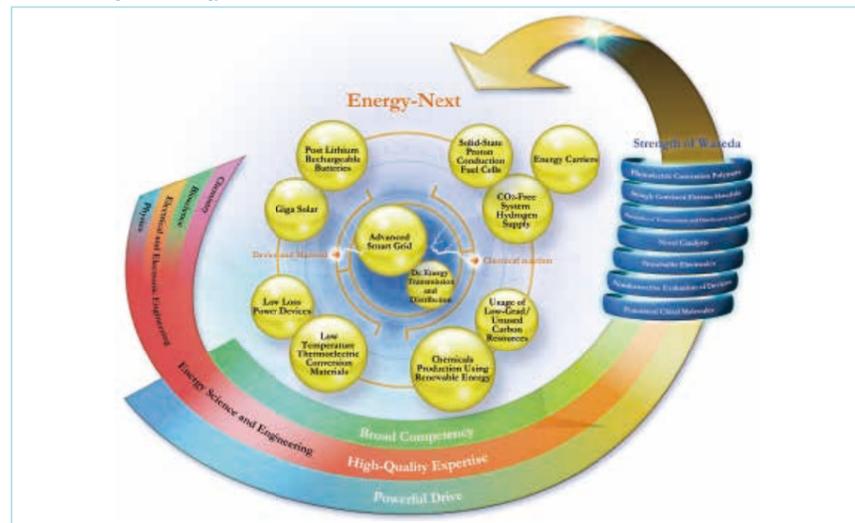
Next-generation energy education through a combination of classroom learning, discussions, and on-site training (Photo: Rang Dong oil field, Vietnam)

active engagement in Waseda's famed research in energy, new materials, and devices, students will become future leaders in making new energy discoveries and contributing to industry and society.

A new five-year Ph.D. program that brings instructors and students together

In order to provide flexibility and continued support for this high-quality, comprehensive interdisciplinary graduate program, it was transformed in April 2014 into a five-year doctoral program, the "Department of Advanced Science and Engineering." It does not provide a Master's degree, but has managed to procure highly motivated students with clear career paths, as well as 11 professors from various fields, firms, and overseas universities. After passing the qualifying exams students are also assigned an advisor from the industrial world to help guide their career. We meet international standards of quality by

Overview of next-generation energy education



Our five-year program cultivates next-generation leaders in the energy field by honing their professional expertise, broadness of perspective, and ability to take action.

DATA (FY2018)

[Number of students recruited] 15 a year
 [Percentage of overseas students and mid-career students (shakajini)] 10% · 0%
 [Matriculated graduate schools, departments, etc.] 2 graduate schools, 9 departments (Graduate School of Advanced Science and Engineering) Advanced Science and Engineering, Pure and Applied Physics, Chemistry and Biochemistry, Applied Chemistry, Life Science and Medical Bioscience, Electrical Engineering and Bioscience, Nanoscience and Nanoengineering, Integrative Bioscience and Biomedical Engineering
 [Graduate School of Information, Production and Systems] Information, Production and Systems (New graduate schools and departments (etc.) established for the program)
 Department of Advanced Science and Engineering (5-year Doctoral Program), Graduate School of Advanced Science and Engineering was newly established in FY 2014.
 [Collaborating universities in Japan and overseas] 59 universities
 Stanford University / Monash University / Rheinisch Friedrich Wilhelm University of Bonn / Korea University / Peking University / University of Michigan / University of California, Los Angeles / New York University / University of Massachusetts / The University of Tennessee / King Abdullah University of Science and Technology / Imperial College London / Uppsala University / University of Oslo / University of California / Case Western Reserve University / Gwangju Institute of Science and Technology /

University of Southampton / The University of Chicago / National University of Singapore / Scuola Superiore Sant'Anna / Tsinghua University / Daegu Gyeongbuk Institute of Science & Technology / Tianjin University / North Dakota State University / Vietnam Academy of Science and Technology / University of Rochester / Pukyong National University / Ecole Normale Supérieure (ENS) / Eidgenössische Technische Hochschule Zürich (ETHZ) / Virginia Polytechnic Institute and State University / Massachusetts Institute of Technology (MIT) / Eindhoven University of Technology / Heidelberg University / University of Freiburg / University of Oxford / University of California, San Diego (UCSD) / University of Hawaii / Dongguk University / Nanyang Technological University
 [Collaborating organizations]
 80 companies, 10 public research institutes, 4 local public bodies, 2 international organizations, 1 other
 JITO Nippon Oil & Energy / TOISHIBA / Bridgestone Americas, Inc. / PSA / BASF / Siemens / TEPCO / Hitachi / Mitsubishi Chemical / Mitsui Chemicals / KONICA MINOLTA / TORAY / Panasonic / Mitsubishi Corporation / IH / Ispac / Asahi Research Center / amelleff / ULVAC / IDEMITSU / Air Liquide Laboratories / AMS / NTT / NEC / PASONA HS / Evonik Industries AG / EUIV Power / Okinawa Sugar Manufacturing / The Okinawa Electric Power Company, (OEPC) / OLYMPUS / Japan International Science and Technology Exchange Center (JISTEC) / Kagoshima Mega Solar Power / Canon / MITSUBI ELECTRIC POWER / KYOCERA / KFRIN / Green Chemical Future / SAMSUNG / Suntory Wellness / JEN

[Number of program graduates (including anticipated number)] 10 (FY 2016), 16 (FY 2017), 9 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 8 to universities, 23 to private companies, 4 to public research institutes

Inquiries: 03-5286-8263 Website: <http://www.leading-en.sci.waseda.ac.jp/>

The University of Tokyo

Graduate Program in Gerontology : Global Leadership initiative for an Age-Friendly Society



This program aims to produce global leaders who can work together to build a vibrant age-friendly society. This requires that they possess three attributes: seasoned research skills in one's field of expertise, a broad outlook on the aging society issue, and the ability to lead a team of experts from multiple fields and work together to realize effective solutions.

[Contents of Diploma]

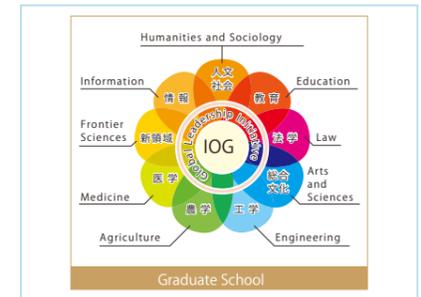
Completion of "Global Leadership Initiative for an Age-Friendly Society" is noted on doctoral diplomas.

A broad outlook, research expertise, and practical problem-solving skills

Through this program, under the support and guidance of professors from one institution and 30 departments in nine graduate schools at The University of Tokyo partnered with firms, local governments, and overseas universities, carefully selected graduate students will 1) obtain the knowledge they need to take a holistic view of the aging society challenges through lectures, 2) learn to solve issues through fieldwork with a team of specialists from various fields and engage in international teamwork through global training to apply their problem-solving abilities in society, 3) by combining with the creative, high-quality specialist research that addresses the needs of an aging society, gain the ability to create a thriving, age-friendly society through obtaining three skills: seasoned research skills in one's field of expertise, a broad outlook on the aging society challenges, and the ability to lead a team of experts from multiple fields and work together to produce real results.

Mobilizing the university's resources to tackle the aging society challenges

By 2030, one-third of Japan's population will be 65 or older, with one-fifth 75 or older, making Japan a



Interdisciplinary education provided by nine graduate programs

DATA (FY2018)

[Number of students recruited] 30 a year
 [Percentage of overseas students and mid-career students (shakajini)] 26% · 37%
 [Matriculated graduate schools, departments, etc.] 9 graduate schools, 30 departments; 1 research institution [IOG] (Institute of Gerontology)
 (Graduate School of Engineering) Civil Engineering/ Architecture/ Urban Engineering/ Mechanical Engineering/ Precision Engineering/ Chemical System Engineering/ Advanced Interdisciplinary Studies (Graduate School of Humanities and Sociology) Socio-Cultural Studies
 (Graduate School of Education) Integrated Educational Sciences/

[Number of program graduates (including anticipated number)] 4 (FY 2016), 8 (FY 2017), 12 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 7 to universities, 6 to private companies, 4 to public research institutes

significantly aged society. Moreover, Korea, Singapore, and China are also forecast to become significantly aged societies between 2040 and 2060. Thus, Japan will be the world's first advanced aged society, and has an obligation to realize an age-friendly society.

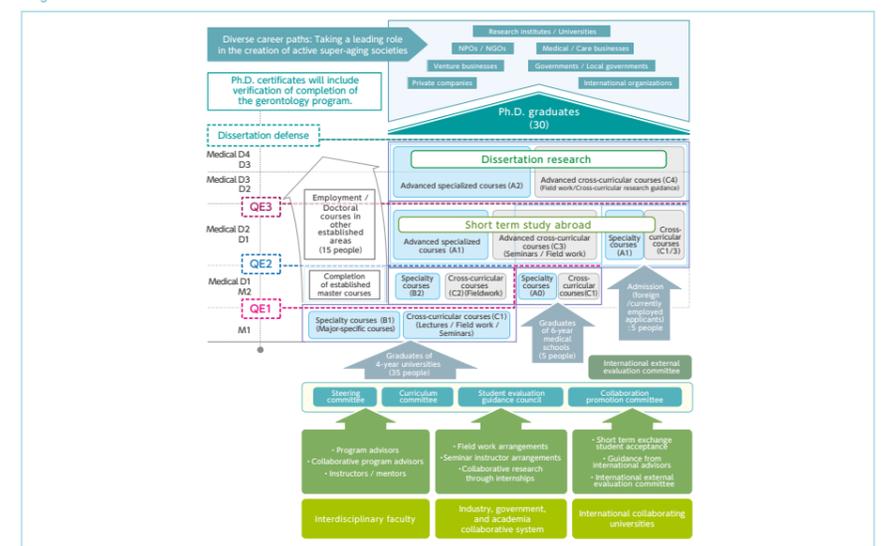
By extending the time the elderly can stay active in their local communities and minimizing the time required for nursing and visiting facilities, the elderly population's quality of life can be improved while simultaneously easing the burden on their families and society and keeping society active. To realize this vision, three fundamental environmental enhancements need to be made in order to support people's lives in cities and other regions: 1) Care support system: Establishing a care and support system (a system that integrates medical care, nursing, caretaking, monitoring system, childcare, child raising, and social welfare); 2) Social support system: Establishing a social support system (a system that supports social inclusion, participation, and community activities); and 3) Establishing an age friendly and assistive physical living environment (housing environment, pedestrian



The multifaceted structure of the Institute of Gerontology

environment, public transportation, townscape, accessible commercial and public facilities, and public open spaces). The University of Tokyo's Institute of Gerontology serves as a base for cutting-edge gerontology research, and by bringing the resources of the whole university together, we are committed to cultivating global leaders who can spearhead efforts to make this new social system a reality.

Program Structure and Overview



Inquiries: 03-5841-1662 Website: <http://www.glafts.u-tokyo.ac.jp/>

Excellence in School Education (Graduate School of Law and Politics) School of Legal and Political Studies (Graduate School of Arts and Sciences) Multi-Disciplinary Sciences (Graduate School of Agricultural and Life Sciences) Agricultural and Environmental Biology/ Applied Biological Chemistry/ Aquatic Bioscience/ Biomaterial Sciences/ Biological and Environmental Engineering/ Animal Resource Sciences/ Veterinary Medical Sciences (Graduate School of Medicine) Social Medicine/ Reproductive, Developmental, and Aging Sciences/ Surgical Sciences/ Health Sciences and Nursing/ International Health (Graduate School of Frontier Sciences) Advanced Energy/

Computational Biology and Medical Sciences/ Human and Engineered Environmental Studies/ Socio-Cultural Environmental Studies/ International Studies (Graduate School of Information Science and Technology) Mechano-Informatics [Collaborating universities in Japan and overseas] 5 universities University of Michigan / University of Oxford / University of Missouri / National University of Singapore / Seoul National University [Collaborating organizations] 5 companies SECOM CO.,LTD. / NLI Research Institute / Daiwa House Industry Co., Ltd. / Benesse Style Care Co.,Ltd. / UIDT Inc.

[Number of program graduates (including anticipated number)] 7 to universities, 6 to private companies, 4 to public research institutes

Ochanomizu University

Fostering Long-Term Creativity and Innovation with Science and Technology Disciplines Based on Ochanomizu Spirit “Migakazuba” in the Next Generation of Global Leaders



Fostering women leaders in science and engineering ready to enter careers

[Contents of Diploma]

Degrees conferred: PhD degrees either in (Sciences for Global Leader, Engineering for Global Leader or Arts and Sciences for Global Leader) or in (Human life and Environmental Sciences, Sciences, or Arts and Sciences). Completion of "Minor Course of Science and Technology for Global Leaders" is noted on the diploma.

Nurturing women with advanced skills ready to help spur innovation

It has become apparent that progress of women's active participation in society is the key strategy in respond to the low birthrate and aging society. In fact, the Japanese government has set a goal of raising the number of women in leadership roles to 30% by 2020. This demonstrates how vital women leaders are to Japan's industries. Based on the university's 140 years of history and experience, and in the spirit of the Ochanomizu school song "Migakazuba," this program aims to cultivate such women leaders.

To pursue this mission, the program has formed close partnerships with companies, academic institutions, and government agencies. The program also has members from companies such as IHI, Nikon, IBM Japan, Bridgestone, Sony, Morinaga & Company, Panasonic, and others, as well as contributors from research institutes and universities such as the Graduate University for Advanced Studies, RIKEN, the National Institute of Informatics, the Institute of Statistical Mathematics, the Institute for Molecular Science, the High Energy Accelerator Research Organization, and the National Institute of Advanced Industrial Science and Technology. Our deep industry-academic-government connections allow our students to make rapid progress towards contributing to society. The program also provides research lab rotations not limited to the aforementioned organizations, helping students to expand their knowledge and hone their research abilities.



Global training

PBTS: A form of study modeled after project teams at companies

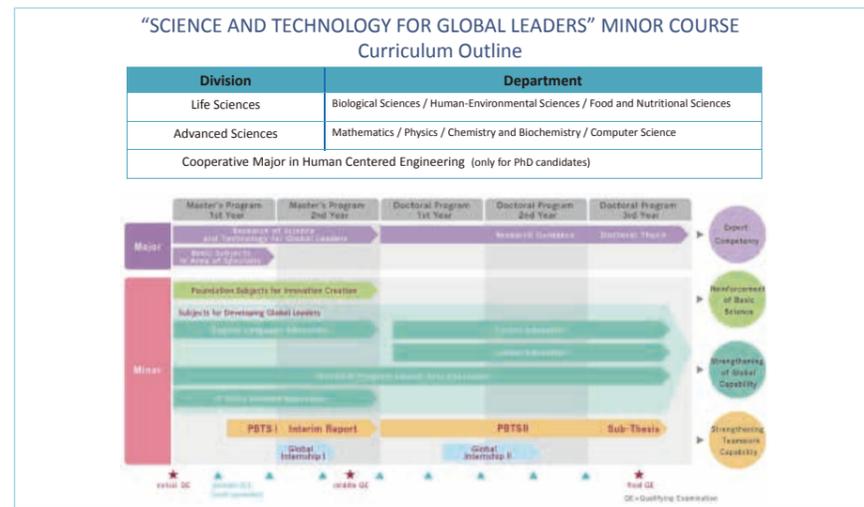
PBTS (Project-Based Team Study) is a new and original Ochanomizu University program educational method that involves teams of graduate students from different disciplines formulating project plans and tackling issues. In contrast with the PBL (Project-Based Learning) where teachers propose topics, PBTS topics are proposed by students, hence nurturing women leaders in science and technology who, through self-directed learning, gain the ability to identify problems, formulate solutions and co-manage a project. Students also interact with other cultures, learning to overcome differences, while gaining project management skills. Underlying idea of PBTS is a pressing issue facing many graduate programs: how to train students ready to contribute to society and overcome the closed nature of research. This led the program to propose the PBTS education model based on the idea that the most inspired ideas can only emerge when multiple opposing ideas



An exchange event with leading programs at other universities

compete among one another, and this is the best way to discover solutions to the issues of the day. PBTS's activities extend beyond the university, too. Students also take part in nine-month global research internships to fulfill their research goals so far over 20 domestic and overseas organizations (private companies, public research institutions, universities, government agencies, etc.) hosted our students.

Our program curriculum



In addition to expertise in their field of specialty, students develop fundamental skills (management, teamwork) to prepare themselves for the corporate environment

DATA (FY2018)

[Number of students recruited] 15 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 28% · 20%
 [Matriculated graduate schools, departments, etc.] 1 graduate school, 3 divisions
 (Graduate School of Humanities and Sciences) Life Sciences division, Advanced Sciences division, Cooperative Major in Human Centered Engineering division

[Collaborating universities in Japan and overseas] 4 universities, 2 inter-university research institutes
 University of Tokyo / Tohoku University / Graduate University for Advanced Studies / University of East Anglia / Research Organization of Information and Systems, Institute of Statistical Mathematics / High Energy Accelerator Research Organization, Institute of Particle and Nuclear Studies
 [Collaborating organizations] 11 companies, 7 public research institutes
 Bridgestone Corporation / IHI Corporation / Hitachi Solutions,

Ltd. / NTT Communications Corporation / Nikon Corporation / IBM Japan, Ltd. / Morinaga & Co., Ltd. / Panasonic Corporation / Microsoft Research Asia / Lanxess GmbH / Spicy Cinnamon Pte.Ltd. / National Institute of Advanced Industrial Sciences and Technology / National Institutes for Quantum and Radiological Science and Technology / RIKEN / National Institute for Materials Science / The PMMH Laboratory (France) / Oak Ridge National Laboratory (USA) / CERN (Switzerland)

[Number of program graduates (including anticipated number)] 4 (FY 2017), 4 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 3 to universities, 4 to private companies, 1 to governmental agency

Inquiries: 03-5978-5821 Website: <http://leading.dc.ocha.ac.jp/leading/>

Hokkaido University

Fostering Global Leaders in Veterinary Science toward Contributing to “One Health”



This program cultivates human resources, people who have the ability to serve as global leaders with a high level of expertise in the field of veterinary medicine and with comprehensive strength and a holistic perspective in order to maintain the health of ecosystems that include both humans and animals, to realize One World - One Health.

[Contents of Diploma]

Degrees conferred: PhD degrees in veterinary medicine, PhD in veterinary medicine with chemical hazard control expert, or PhD in veterinary medicine with zoonosis control expert. Completion of "Fostering global leaders in veterinary science toward contributing to One Health" is noted on the diploma.

Training human resources to provide leadership for One Health

"One World, One Health" is a concept under which the maintenance of healthy ecosystems on earth can only be achieved when the health of both humans and animals are maintained. This unique postgraduate educational program works to provide its graduate students with a sense of globalism and a greater awareness, independence, and individuality as professionals, and aims to cultivate the skills to holistically see the entirety of the various problems as it trains "PhDs" as experts with practical skills. To provide the comprehensive skills require for a PhD, we have prepared training opportunities that enable students to apply their expertise in practical settings and have prepared an environment that enables discussions based on a wider perspective of the issues, as well as provide a learning environment that enables graduate students with strong intellectual curiosity to work diligently as they enjoy receiving the highest level of education and research opportunities.

Expert training courses

This program offers new courses specialized in expert training as part of the traditional PhD program (veterinary medicine). During their first year, students receive a common curriculum, and during their second year and beyond, receive different curricula depending on their course. Students in all courses conduct experimental



Workshop (2015): Students and instructors discussing a concrete image for global leadership

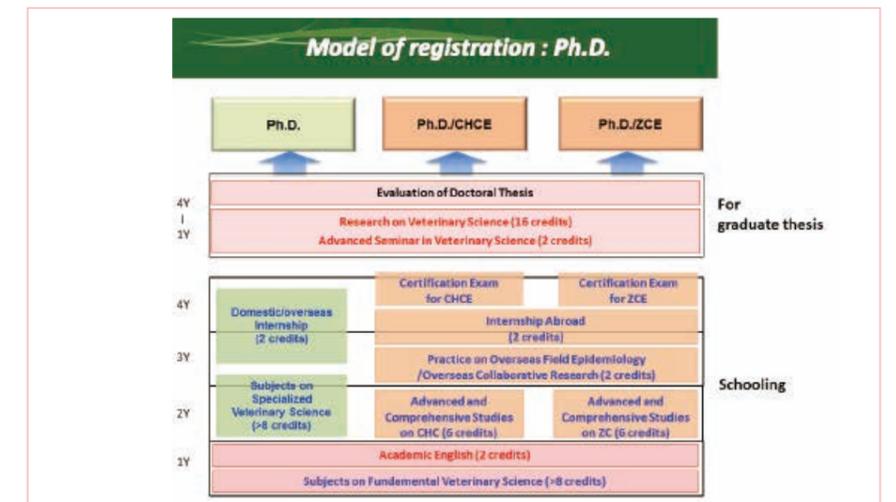
research throughout their entire time in graduate school (four years) and write their PhD dissertation and receive their degree based on the results. The Expert in Zoonosis Control course trains human resources with remarkable expertise in infectious diseases and the causal pathogens, the skills to apply this expertise in a practical manner, and the skills to provide leadership in disease control, education, and research on the international stage. The Expert in Chemical Hazard Control course trains human resources that can provide leadership to promote education, research, and control in the relevant fields with a global perspective and holistic skills in regard to the essence of chemical hazards such as environmental pollution and the impact these have on humans, animals, and ecosystems. Moreover, controlling zoonosis and chemical hazards requires the collaboration of many institutions. Each of these institutions that provide research and development, medical, crisis management, risk analysis and assessment, and collecting and addressing of information, requires



Expert in Zoonosis Control training course certification ceremony: passing the examination after completing the four-year course

experts who understand the fundamental principles for controlling hazards and have a research-oriented way of thinking to provide leadership. In other words, each of these different institutions offers a future path for experts trained in this program, and serves as a location to utilize that expertise.

Course model



Adding to the traditional PhD program (veterinary medicine), the program offers new specialized expert training courses

DATA (FY2017)

[Number of students recruited] 24 a year (FY 2012-2016), 28 a year (FY 2017)
 [Percentage of overseas students and mid-career students (shakaijin)] 45% · 3%
 [Matriculated graduate schools, departments, etc.] 6 graduate schools, 6 divisions; 1 research center
 (Graduate School of Veterinary Medicine) Veterinary Medicine (Graduate School of Infectious Diseases) Infectious Diseases (Faculty of Veterinary Medicine) Veterinary Medicine (Research Center for Zoonosis Control)

(Faculty of Medicine) Pathology (Graduate School of Information Science and Technology) Bioengineering and Bioinformatics (Graduate School of Environmental Science) Integrated Environmental Science
 [New graduate schools and departments (etc.) established for the program] Graduate School of Veterinary Medicine and Graduate School of Infectious Diseases were newly established in FY 2017.

[Collaborating universities in Japan and overseas] 4 universities
 Obihiro University of Agriculture and Veterinary Medicine / Cornell University / University of Texas / University College Dublin
 [Collaborating organizations] 1 company, 1 public research institute, 3 international organizations
 Shionogi & Co., Ltd. / National Institute of Allergy and Infectious Diseases (USA) / OIE / FAO / WHO

[Number of program graduates (including anticipated number)] 1 (FY 2014), 9 (FY 2015), 15 (FY 2016), 25 (FY 2017)
 [Main destinations of program graduates (including anticipated destinations)] 22 to universities, 3 to private companies, 11 to public research institutes, 4 to governmental agencies, 3 to medical doctors

Inquiries: 011-706-9545 Website: <http://leading.vetmed.hokudai.ac.jp/>

Gunma University

Program for Cultivating Global Leaders in Heavy Ion Therapeutics and Engineering



With its heavy ion medical accelerator, Gunma University is the only institution among universities with a graduate school doctoral course in Japan that is able to pursue all aspects of heavy ion radiation therapy, education, and research.

Within a learning and research environment that integrates medicine, engineering physics, and biology, this program trains global leaders that have the skills to work across various fields of expertise and drive the field of heavy ion radiation therapy.

[Contents of Diploma]

Degrees conferred: PhD degrees in Medical Sciences. Completion of "Program for Cultivating Global Leaders in Heavy Ion Therapeutics and Engineering" is noted on the diploma.

Training global leaders in the fields of heavy ion therapy

As a treatment method that is able to reduce the burden on the body and provide a high QOL (Quality of Life), heavy ion radiation therapy is expected to be further developed in the future. Gunma University is the only university with a PhD graduate course that has a heavy ion therapy equipment, making it the only university that can provide education, research, and human resource training in heavy ion radiation therapy.

The Graduate School of Medicine collaborates with the world's highest level of educational and research institutes to foster global leaders that can drive integrated medical and engineering research in heavy ion therapeutics and undertake the development of this interdisciplinary field, as well as lead medical innovation in heavy ion therapeutics and engineering.

Currently, we are utilizing our educational and research network consisting of universities, research institutes, and private companies around the world to lay the foundations for international educational system and to train young, global leaders who have a broad-range of knowledge and an international perspective.

Specifically, we recruit professors and associate professors from universities such as Harvard University and Heidelberg University to provide special lectures and individual instruction for our L-PhD graduate students. Moreover, we offer L-PhD graduate students with the opportunity for short-term and long-term study abroad programs at these international research institutes to provide them with experience in international research environments, and



Our leading postgraduate education program utilizes an international educational and research network

also offer short-term training practicums by dispatching students to international conferences at the International Atomic Energy Agency (IAEA) headquarters in Vienna.

Cooperative course on heavy ion medical engineering

— Nurturing scholarship and broad holistic skills

In this degree program, we have established a leading heavy ion therapeutics and engineering collaborative course that integrates medicine and engineering as part of the PhD program. In this way, this program aims to train leaders in the fields of radiation oncology, engineering physics, and medical biology that can function anywhere in the world with an excellent disposition and that have the skills to lead the interdisciplinary advanced medical field of heavy ion therapy across fields of expertise. This course also aims to train research and development leaders for companies developing heavy ion therapy equipment.

These leaders are trained from the perspective of both the fundamentals of heavy ion radiation medicine and biology, and the development of and applied technology

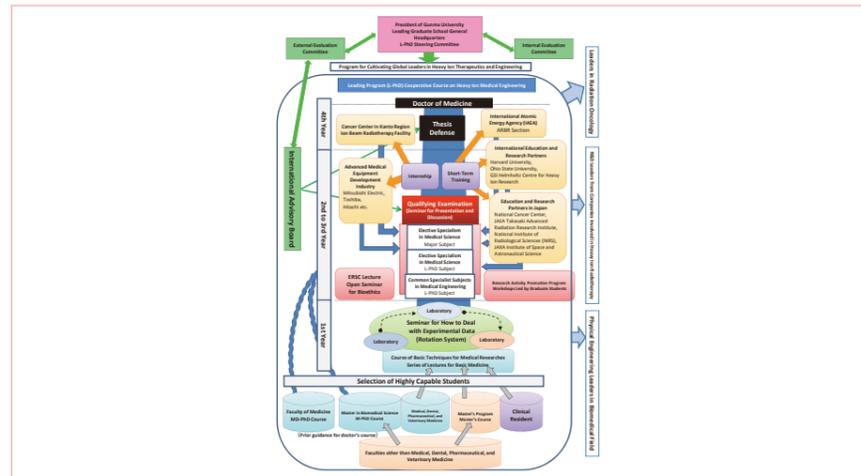
The 5th International Symposium of Gunma University Program for Leading Graduate Schools



Course students organized and presented at an international symposium and received the advice of renowned researchers from around the world

for advanced heavy ion clinical research and advanced medical equipment. In line with their characteristics and core academic field, graduates are expected to help support the promotion and development of the heavy ion radiation therapy field as leaders that can comprehensively manage and develop the use of heavy ion therapies at radiological and heavy ion research facilities and heavy ion therapy facilities around the world, and as international leaders in the advanced medical device development industry.

Graduate Program Overview



By providing postgraduate education through an international educational and research network, this program trains young leaders that can act globally in each field

Inquiries: 027-220-7111 Website: <http://lphd.dept.showa.gunma-u.ac.jp/>

DATA (FY2017)

[Number of students recruited] 4 a year
 [Percentage of overseas students and mid-career students (shakajiri)] 35% - 56%
 [Matriculated graduate schools, departments, etc.]
 2 graduate schools, 2 courses
 (Graduate School of Medicine) Medical Sciences
 (Graduate School of Science and Technology) Science and Technology

[Collaborating universities in Japan and overseas]
 4 universities
 University of Tsukuba / Harvard University / The Ohio State University / Heidelberg University

[Collaborating organizations]
 3 companies, 5 public research institutes
 Mitsubishi Electric Corporation / Toshiba Corporation / Hitachi, Ltd. / National Cancer Center Research Institute / Gunma Prefectural Cancer Center / National Institutes for Quantum and Radiological Science and Technology / Japan Aerospace Exploration Agency / GSI Helmholtz Center for Heavy Ion Research

[Number of program graduates (including anticipated number)] 5 (FY 2015), 3 (FY 2016), 7 (FY 2017)

[Main destinations of program graduates (including anticipated destinations)] 2 to universities, 2 to private companies, 10 to medical doctors

Tokyo Institute of Technology

Global Human Resource Development Program for Nuclear Safety and Security (U-ATOM)



This program trains tough, high-level experts and high-level nuclear engineers that can respond to the problems of large-scale natural disasters, nuclear terrorism, and nuclear proliferation as global leaders with the ability to contribute to society by utilizing advanced negotiating skills, not only in Japan, but also at the International Atomic Energy Agency (IAEA) and other international organizations.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Philosophy or Engineering. Completion of "Academy for Global Nuclear Safety and Security Agent" is noted on the diploma.

Training global nuclear energy safety and security agents

A parade of problems that have rocked the world, including the shocking fact that nuclear power plants have become a target of terrorism, as revealed by the coordinated terrorist attacks in the US in 2001, the North Korean nuclear issue, and the large-scale nuclear disaster at the Fukushima Daiichi Nuclear Power Plant following the Great East Japan Earthquake, have made the safety of nuclear power a questionable issue. At this point in time, however, it is still believed internationally that appropriately controlled nuclear power generation is essential as an energy source for supporting sustainable growth. To utilize nuclear power in a safe, peaceful manner, we must quickly and reliably develop talented human resources. This degree program trains "Global Nuclear Energy Safety and Security Agents" as global leaders that can act in the industrial, government, and academic sectors related to nuclear power around the world with a high level of international negotiating skill for the purpose of solving the various problems in the fields of "nuclear proliferation, nuclear terrorism, large-scale nuclear disaster, emergency radiation exposure, and other global nuclear power crises that threaten the foundation of human existence" and for the purpose of building a peaceful, safe, and secure human society.

Students selected for this degree program will go beyond acquiring deep expertise to nurture wide-ranging social and international skills, and personal skills, and will work daily in their studies in order to acquire an overarching understanding of the times and in order to act as "Leaders



International symposium and seminar

with high ideals that contribute to individuals, society, and the world."

Cultivating international, social, educational, and personal skills

Those participants who are selected for this degree program from among the students in our Nuclear Engineering Masters program will enter the "Global Nuclear Safety and Security Training Hall (Dojo)," of which all members are boarders, where they are expected to eat, sleep, and work diligently together with the other students. Educators will also live together and hold intense discussions with the students in the Dojo, whereby the students are expected to increase their own awareness of themselves as world leaders.

In this degree program, students choose from among course listings in the basic and advanced nuclear energy fields, society and communication fields, and advanced international studies, as well as from internships and volunteering. Moreover, students will also build experience through practicums that include environmental radiation measuring fieldwork and nuclear reactor accident



Underground (450 m) research facility for final disposal of spent fuel rods (Sweden)

simulations. This approach both enables students to devote themselves to studying their field of expertise, as well as nurtures individuals with a sense of social responsibility and ethics as engineers. Moreover, each year we provide training in Europe and the US as an approach to international skill cultivating practical education. We also offer a science cafe, provide Dojo talks by experts, and hold international symposiums and seminars to expand the perspectives of the students.

Degree program curriculum overview

Curriculum				
Master's degree program Year 1	Master's degree program Year 2	Doctoral degree program Year 3	Doctoral degree program Year 4	Doctoral degree program Year 5
Nuclear Engineering Courses		Domestic Internship Program (3-6 months)	Overseas Internship Program (6-12 months)	Doctoral Thesis
Nuclear Safety and Security Courses Society and Communication Courses		Nuclear Dojo Courses High-level International Liberal Arts Courses		

Inquiries: 03-5734-3279 Website: <http://www.dojo.titech.ac.jp/>

DATA (FY2017)

[Number of students recruited]
 15 a year (FY 2012-2014), 10 a year (FY 2015-2017)
 [Percentage of overseas students and mid-career students (shakajiri)] 27% - 13%
 [Matriculated graduate schools, departments, etc.]
 3 schools, 1 graduate major
 (School of Engineering) Nuclear Engineering
 (School of Materials and Chemical Technology) Nuclear Engineering
 (School of Environment and Society) Nuclear Engineering

[Collaborating universities in Japan and overseas]
 2 universities
 University of California, Berkeley / Texas A&M University

[Collaborating organizations]
 4 companies, 1 public research institute, 1 local public body, 1 international organization, 2 others
 Japan Atomic Industrial Forum, Inc. (JAIF) / The Institute of Energy Economics, Japan / Council for Public Policy, Japan / ROSATOM Central Institute for Continuing Education & Training (ROSATOM-CICE&T), Russia / Japan Atomic Energy Agency (JAEA) / Fukui Prefectural Government / International Atomic Energy Agency (IAEA) / World Nuclear University (WNU) / European Nuclear Education Network (ENEN)

[Number of program graduates (including anticipated number)] 3 (FY 2016), 3 (FY 2017)

[Main destinations of program graduates (including anticipated destinations)] 3 to private companies, 2 to public research institutes

University of Yamanashi



Green Energy Conversion Science and Technology

The science and technology related to the conversion and storage of green energy has been positioned as one of the new strategic growth fields in Japan. Through an educational organization that shares its ideals with industry, academia, and government, this program trains green innovation leaders that can act globally with a broad perspective on energy conversion engineering and its economy.

[Contents of Diploma]

Degrees conferred: PhD degrees in Engineering. Completion of "Green Energy Conversion Science and Technology" is noted on the diploma.

Program initiatives and training goals

We train leaders that will act globally with a broad perspective on green energy conversion engineering and its economy, which is one of the greatest problems being faced by humanity and a field positioned as one of Japan's new strategic growth fields. The specific issues include [1] developing revolutionary sciences and technologies that efficiently and economically convert and store green energy to realize a low-carbon, sustainable society, [2] realizing the best balance of various energy conversion devices, and [3] creating innovation through this research. This program provides an education that guarantees the essence of expertise, practical skills, and globalism through the combination of a rich offering of educators from the Clean Energy Research Center and the Fuel Cell Nanomaterials Center, both world class educational and research facilities located at the University of Yamanashi, and educators from collaborating educational and research institutes (National Institute of Advanced Industrial Science and Technology, National Institute for Materials Science, etc.), cooperating industrial educational institutes (Toshiba Energy Systems & Solutions Corporation, Nissan Motor Company, etc.), and a global collaborating network is formed together with 17 cooperating institutes that have produced exceptional results. We also provide credits for shared-education classes offered by educators at collaborating institutes, international seminars, six-month study- abroad programs at cooperating overseas institutes, and corporate internships.

Curriculum features and the learning/research environment

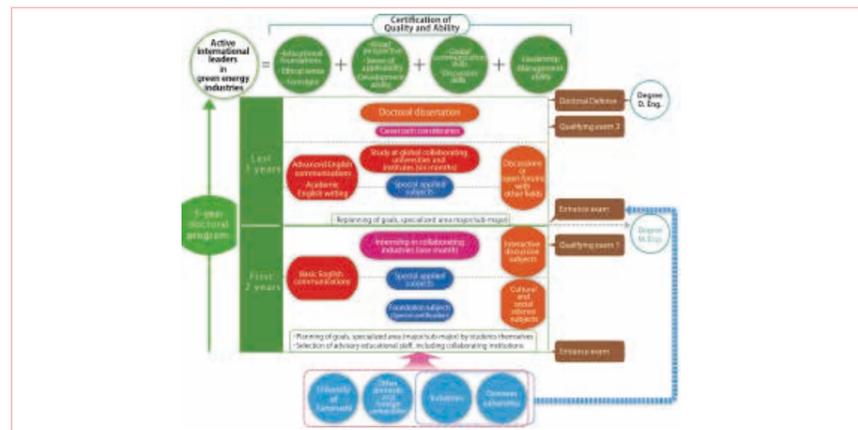
Approximately 50 educators from the University of Yamanashi and the cooperating educational institutes participate in the program, allowing us to provide refined, small-class sized education at a ratio of approximately 1.5 students per educator. Moreover, we actively accept talented foreign students and company employees as students to offer a highly stimulating learning environment. We also operate a "Cafe" at which students can freely gather, and provide full tuition support for internships and study-abroad programs as well as provide scholarships and other economic support for high-achieving students. The monthly research presentation meetings are attended by all program students and educators. The meetings produce many chances for intense questioning and answering with students and educators from outside of the main fields of specialization, which polishes debating skills. From among the four fields, students select a primary specialization and a secondary specialization of their own choice when they enter the program, and receive instruction from educators in multiple fields. During the first year of the Masters program, students enrich their fundamental academic skills and are provided with an abundant grouping



Group discussion during a monthly research presentation meeting: Open discussions surround the presenters in the active learning room

of practical courses and conversational English education for foreign educators. During the Doctoral program, students develop broad views and debating skills through discussions with educators and students from different fields. To further cement the knowledge learned through the course, we provide a shared laboratory in which our cutting-edge equipment is concentrated. After graduation, students are expected to apply themselves at companies in the automotive, electrical equipment, energy supply, materials production, and electronic device and analysis device manufacturing industries, among others, as well as at public research and educational institutions and governments in Japan and abroad.

Degree program for training leaders



Educational and research fields in the special training program for green energy conversion science and technology

DATA (FY2017)

[Number of students recruited] 15 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 28% · 14%
 [Matriculated graduate schools, departments, etc.] 1 Academic Department, 1 Academic Program
 (Integrated Graduate School of Medicine, Engineering, and Agricultural Sciences) Special Doctoral Program for Green Energy Conversion Science and Technology
 [Collaborating universities in Japan and overseas] 18 universities
 The Pennsylvania State University / University of Birmingham / Technical University of Munich / Montpellier University / University of Poitiers / Seoul National University / Daegu Gyeongbuk Institute of Science and Technology

[Number of program graduates (including anticipated number)] 2 (FY 2014), 8 (FY 2015), 11 (FY 2016), 5 (FY 2017)
 [Main destinations of program graduates (including anticipated destinations)] 5 to universities, 18 to private companies, 3 to public research institutes

Science and Technology / California Institute of Technology / Wuhan University / Simon Fraser University / State University of New York / University of Hanover / Curtin University / Oregon State University / Boston University / Leiden University / Rensselaer Polytechnic Institute / Technical University Berlin
 [Collaborating organizations] 30 companies, 12 public research institutes
 Nissan Research Center / Toshiba / Panasonic / Hitachi High-Technologies / JXTG Nippon Oil & Energy / Panasonic Storage Battery (GS Yuasa Energy) / Shimadzu / Showa Denko / Crystal Systems / Japan New Metals / Ask Technika / Citizen Electronics / Nippon Chemicon / Shinkosha / Kaneka / Kobelco Eco-Solutions / Shibaura Eletec /

Daihatsu Motor / Nissan ARC / Murata Manufacturing / Cataler / Fasford Technology / Powdertech / Toyo Electronics / Kureha / Mitsubishi Kakoki Kaisha / JCU / Taiyo Yuden / TDK / C&A / Yamanashi Industrial Technology Center / Chinese Academy of Sciences / Canadian National Institute for Fuel Cell Research / Max Planck Institute / Paul Scherrer Institute / Korea Institute of Energy Research / National Institute for Materials Science / National Institute of Advanced Industrial Science and Technology / Japan Aerospace Exploration Agency / National Renewable Energy Laboratory / Los Alamos National Laboratory / SLAC National Accelerator Laboratory

Inquiries: 055-220-8621 Website: <http://green.yamanashi.ac.jp/>

Nagoya University



The Program for Cross-Border Legal Institution Design

This program trains human resources with the skills to explain Japanese systems with a strong understanding of Asia, understand and compare a diversity of societies with a flexible mind, and design and propose legal institutions that function properly for cross-border transplantation, the skills to cooperate with leaders having diverse backgrounds to create and manage teams of experts, as well as the advanced legal skills, including draft laws and ordinances.

[Contents of Diploma]

Degrees conferred: LL.D. degrees in Comparative Law Completion of "The Program for Cross-Border Legal Institution Design" is noted on the diploma.

Training talented leaders to support cross-border legal institutionalization

Leaders from Japan are expected to further increase their presence in Asia going forward and contribute on a global scale. By fully utilizing "the sites of institutional cross-border transplantation" (legal institutionalization support projects, etc.), this program trains human resources that can travel freely around the world to analyze and organize issues, and utilize their skills in the areas of organization management, social management, and dispute resolution. Social and legal reform goes beyond creating codes and statutes, and is only realized when there is a comprehensive understanding of and insight into the various social mechanisms, politics, histories and culture, religion, and mobilization of human resources. Leaders that can contribute to Asia must understand Asia in a multifaceted manner, and be able to clearly explain Japanese systems to leaders and people concerned in other countries. Moreover, significant cooperation is required to understand Asia and Japan and to support reform. Leaders that can apply the experience and wisdom of Japan for the benefit of Asia must be able to create organizations along with individuals having a diverse range of cultural backgrounds, communicate smoothly in multiple foreign languages, rapidly organize outstanding proposals, and have the skills to provide ideas that will guide organizations. This program is the only program in Japan to create a



Students visit an international institute during the long-term internship in Geneva, Switzerland

location for practical education and research in which Japanese and foreign students cooperate over the long-term to train leaders with the skills to contribute to institutional cross-border transplantation by .

Self-planned overseas training and research Group work in international teams

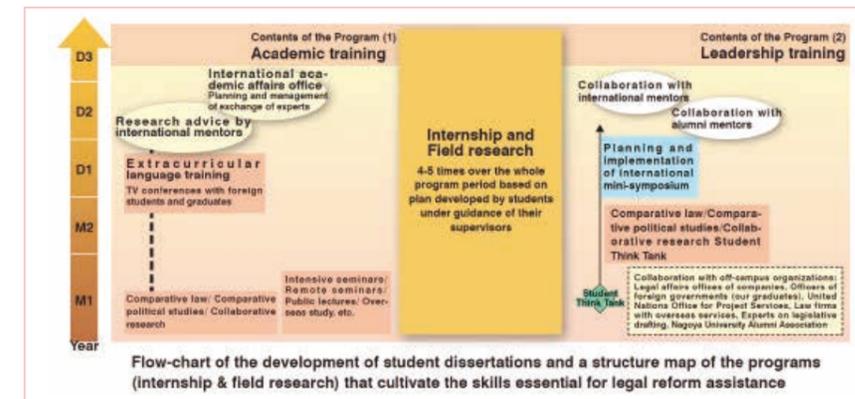
The pillars of this program consist of internships and field research in Asian countries and other locations around the world. The main feature of this work is self-guided planning by the students. By having students direct all aspects of this work, from topic design to contacting and negotiating with the destination training facility, the program aims to provide students with practical skills and to nurture international human networks. Training is basically individual pursuits, so students may repeatedly fail during the initial stages. By accumulating this kind of experience multiple times, however, students acquire the negotiating skills and techniques required within the international community. As students hold their research topics tightly in their minds and overcome these hardships to embark on their training, they begin to make their own



Students present the results of their joint research at an international conference

aspirations a reality. This program also includes group work. International student groups are organized by mixing Japanese and foreign students. According to each group's topic, experts are invited and joint research is conducted. Although opinions may clash at times, these experiences help students acquire the theory and planning execution skills that support project management and joint research. Students then present the results of their work at international symposiums planned by the students themselves to cultivate presentation skills.

Training individuals to conceive of and design attractive institutions



This program is enriched through internships and field research at sites that support the establishment of legal institutions, joint research, and support for English and Asian language.

DATA (FY2017)

[Number of students recruited] 10 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 68% · 29%
 [Matriculated graduate schools, departments, etc.] 1 school, 1 program
 (Graduate School of Law) Department of Combined Graduate Program in Law and Political Science

[Number of program graduates (including anticipated number)] 5 (FY 2017)
 [Main destinations of program graduates (including anticipated destinations)] 2 to universities, 1 to private company, 1 to other

Inquiries: 052-789-2324 Website: <http://www.law.nagoya-u.ac.jp/~leading/>

University of Hyogo

Next generation picobiology pioneered by photon science



Based on a foundation of high-level expertise in the life sciences, this program trains human resources that can act as leaders in various fields within society. Through research, wide-ranging expert training, and scientific studies, students acquire deep insight and holistic skills, and global communication skills as well.

[Contents of Diploma]

Degrees conferred: PhD degrees in Science. Completion of Department of Picobiology, Graduate School of Life Science is noted on the diplomas.

Leaders with both high-level expert skills and wide-ranging holistic skills

Based on the concept of revealing the structures and functions of proteins at the picometer level, picobiology is an academic discipline that aims to understand biological phenomena as a chain or network of chemical reactions driven by proteins. By providing students with the opportunity to undertake the creation of this new academic field and produce internationally recognized research results, this program enables students to acquire a high level of research skill while at the same time providing them with the skills to discover issues on their own, take unique challenges, and accurately grasp the essence of these issues. Moreover, through picobiology research and practicums, students learn how to utilize a variety of the world's cutting-edge structural analysis equipment, such as SPring-8 and X-ray free electron laser (SACLA), as well as learn about the actual development and employment of large-scale research equipment.

In the field of picobiology, there are many research groups that lead the world in a wide range of fields, from cell biology to structural biology. Through discussions from various perspectives with these research groups, as well as through unique lectures, students acquire their stances by which thinking broadly and deeply about the biological meaning of their research, as well as advanced holistic skills and a solid concept of value.

Under the catchphrase of "Excelling in one talent but never justifying being buried in it," this program places its pivot foot in advanced research, and it goes beyond training just researchers but aims to cultivate leaders that can open new fields and lead the world.



Aiming to train human resources that can act globally

Opportunities for unique practicums, lectures, and diverse international experiences

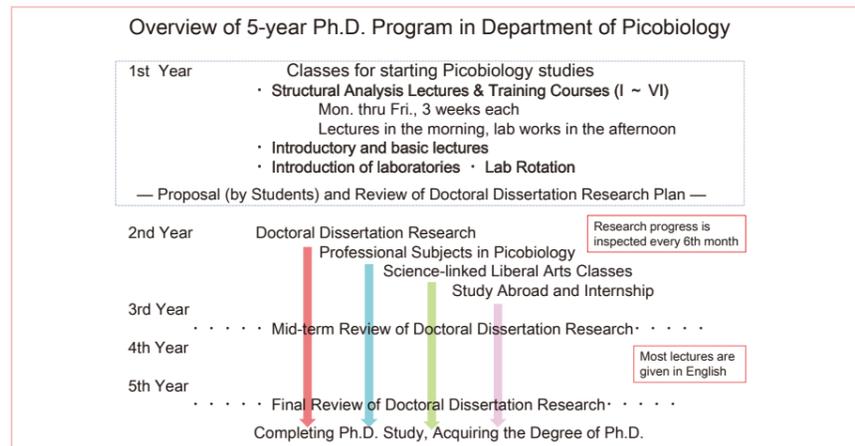
Through the creation of next-generation picobiology, this program offers a diverse menu for the purpose of training advanced research skills and holistic skills. The structural analysis equipment practicum held throughout the first half of the first year provides students with actual experience in the use of cutting-edge equipment and technology, such as the SPring-8, as the only such practicum in the world. After first thoroughly learning the basics and rotating through each research lab, students join a research lab of their own choosing and begin their PhD dissertation research following a research plan of their own design. From the second year, the program provides advanced expert lectures, scientific studies lectures run by top-ranking lecturers, and practical courses including internships and study abroad programs, which simultaneously provide students with opportunities to deepen their expertise and expand their perspective. "Special Leadership Theory Lectures" held by leaders of



Vibrational spectroscopy experiments are a core technology of picobiology

industry and "Special Career Path Lectures" held by those on the frontlines of different fields throughout society help open the eyes of students to the realities of society. In addition to the fact that most of the lecture courses are given in English, students nurture their language skills and a rich sense of globalism by participating in short-term study abroad programs, holding and managing international symposiums, making research presentations at international conferences, and conversing daily with the many study abroad students.

Degree program annual track overview



After learning the basics during their first year, students begin their research during their second year on topics of their own design, and then acquire their degree after an intermediate and final examination.

Inquiries: 0791-58-0101 Website: <http://www.sci.u-hyogo.ac.jp/life/Leading/index-j.html>

DATA (FY2017)

[Number of students recruited] 10 a year (Among them, 2 admitted in 3rd school year)
 [Percentage of overseas students and mid-career students (shakaijin)] 41% · 0%
 [Matriculated graduate schools, departments, etc.] 1 graduate school, 1 department
 (Graduate School of Life Science) Department of Picobiology

[New graduate schools and departments (etc.) established for the program] Department of Picobiology in Graduate School of Life Science was newly established in FY 2013.
 [Collaborating universities in Japan and overseas] 1 university
 Okayama University
 [Collaborating organizations] 9 companies, 5 public research institutes
 Suntory Global Innovation Center Limited / Dojindo Laboratories

/ Yomiuri Shimbun / Leica Microsystems K.K. / Oxford University Press / SYSTEM IN FRONTIER INC. / KYOWA HAKKO BIO CO.,LTD. / DAICEL Corporation / Toyama, Co. Ltd / RIKEN / National Institute of Advanced Industrial Science and Technology / National Institutes for Quantum and Radiological Science and Technology / National Institute of Information and Communications Technology / National Cerebral and Cardiovascular Center Research Institute

[Number of program graduates (including anticipated number)] 2 (FY 2015), 7 (FY 2017)
 [Main destinations of program graduates (including anticipated destinations)] 4 to universities, 2 to private companies, 1 to other

Akita University



New Frontier Leader Program for Rare-metals and Resources

This program aims to nurture "new frontier resource leaders" with expertise in resource sciences, English ability, a global outlook and creative thinking based on international understanding, problem-solving skills, resource science literacy, and policymaking ability.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Engineering, Resource Science, or Science. Completion of "New Frontier Leader Program for Rare-Metals and Resources" is noted on the diploma.

Nurturing global leaders in resource studies to pave the way for the 21st century

The majority of our country's resources are imported. Meanwhile, competition for resources has grown ever more intense, and those involved in resource development require not only specialist knowledge, but several other skills such as the ability to get things done and international understanding. Recently, in addition to fluctuations in the price of resources, problems such as decreased ore quality, worsening production environments, economic disparity, and resource nationalism have intensified, making individuals who can tackle these issues with a broad mindset ever more essential. The Graduate School of International Resources offers a special graduate program in "New Frontier Leader Program for Rare-metals and Resources" with a focus on providing resource-related expertise and practical training to students. This special program consists of the "Earth Science and Technology" and "Resource Development and Processing" courses, both of which take advantage of Akita University's over 100-year history of ore- and resource-related studies. Students will be exposed not only to traditional resource studies, but also recycling (urban mine development), resource economics, resource circulation, environmental preservation, and resource literacy. They will also gain a deeper understanding of foreign cultures and international relations. This will allow us to train global leaders ready to meet the resource development challenges of the 21st century.



Lab rotation in action

A base for international research in the resources field

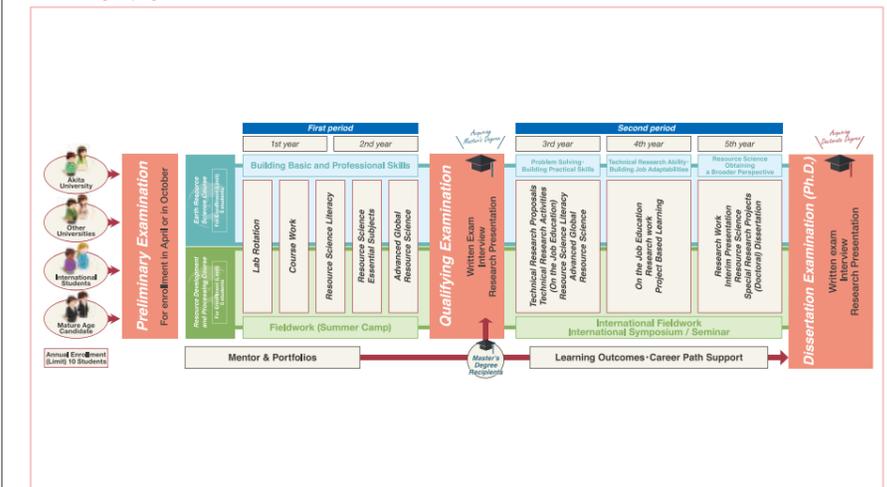
With the Graduate School of International Resources at its core, this program conducts educational research with the cooperation of other related departments of the university. We gather researchers and others on the front lines both domestically and internationally, allowing our students to hone not only their professional expertise, but also their skills in social studies, MOT-related studies, resource studies literacy, and many other areas. In addition, each field has a fully outfitted research environment, and lab rotations that span multiple courses are conducted as well. Our program provides the learning environment necessary to train resource development experts in cutting-edge research. Furthermore, our program places an emphasis on practical fieldwork both domestically and internationally. Students and their advisors conduct field research, prospecting work, and more not only in Japan, but in places such as



Fieldwork in Indonesia

Mongolia, Indonesia, the Philippines, Thailand, Vietnam, Papua New Guinea, South Africa, Botswana, and other countries. By working with partner institutions abroad and experiencing fieldwork, workshops, and more, students improve their communication abilities and international understanding, helping them to acquire the general and practical skills they need to become global leaders.

A holistic degree program



A curriculum that covers specialist and applied knowledge and hones ethical thinking, practical skills, planning skills, and career skills

Inquiries: 018-889-2308 Website: <http://akita-u-shigen-nfl.jp/index.html>

DATA (FY2018)

[Number of students recruited] 10 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 80% · 0%
 [Matriculated graduate schools, departments, etc.] 2 graduate schools, 4 departments
 (Graduate School of International Resource Sciences) "Geoscience, Geotechnology, and Material Resource Engineering", "Earth Resource Science" and "Earth Resource Engineering and Environmental Science"
 (Graduate School of Engineering and Resource Science) "Geoscience, Geotechnology, and Material Resource Engineering"

[New graduate schools and departments (etc.) established for the program] Graduate School of International Resource Sciences (Departments of "Geoscience, Geotechnology, and Material Resource Engineering", "Earth Resource Science", "Earth Resource Engineering and Environmental Science") was newly established in FY 2016.
 [Collaborating universities in Japan and overseas] 7 universities
 The University of Tokyo / Tohoku University / University of Ottawa / Montana State University / Bandung Institute of Technology / D. Serikbayev East Kazakhstan state technical university / University of Botswana

[Collaborating organizations] 8 companies, 1 public research institute, 1 governmental agency
 Japan Mining Industry Association / The Mining and Materials Processing Institute of Japan / The Society of Materials Engineering for Resources of JAPAN / Sumitomo Metal Mining Co., Ltd. / JX Nippon Mining & Metals Corporation / DOWA HOLDINGS Co., Ltd. / Itochu Mineral Resources Development Corporation / International Institute for Mining Technology, JMEC / Japan Oil, Gas and Metals National Corporation / Ministry of Economy, Trade and Industry

[Number of program graduates (including anticipated number)] 1 (FY 2015), 4 (FY 2016), 3 (FY 2017), 6 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 6 to universities, 2 to private companies, 2 to public research institutes

Yamagata University

Innovative Flex Course for Frontier Organic Material Systems (iFront)



Our campus in Yonezawa City, Yamagata Prefecture serves as a global center for organic materials research. This program, capitalizing on this environment, cultivates global leaders that satisfy industrial, academic, and governmental needs, having the creativity and independence to forge ahead in the field of frontier organic material systems.

[Contents of Diploma]

Degrees conferred: PhD degrees in Engineering. Completion of iFront Program is noted on the diploma.

Cultivating global leaders who create new value that enriches the world

The "Innovative Flex Course for Frontier Organic Material Systems" is a flexible five-year program that aims to produce leaders ready to work on a global scale to create value from organic materials. The program is designed to train individuals who 1) have the creativity to help develop the "frontier organic material system" field and 2) have the independent mind required of a global leader. These are the types of individual sought by companies, academic institutions, and government agencies.

A unique curriculum

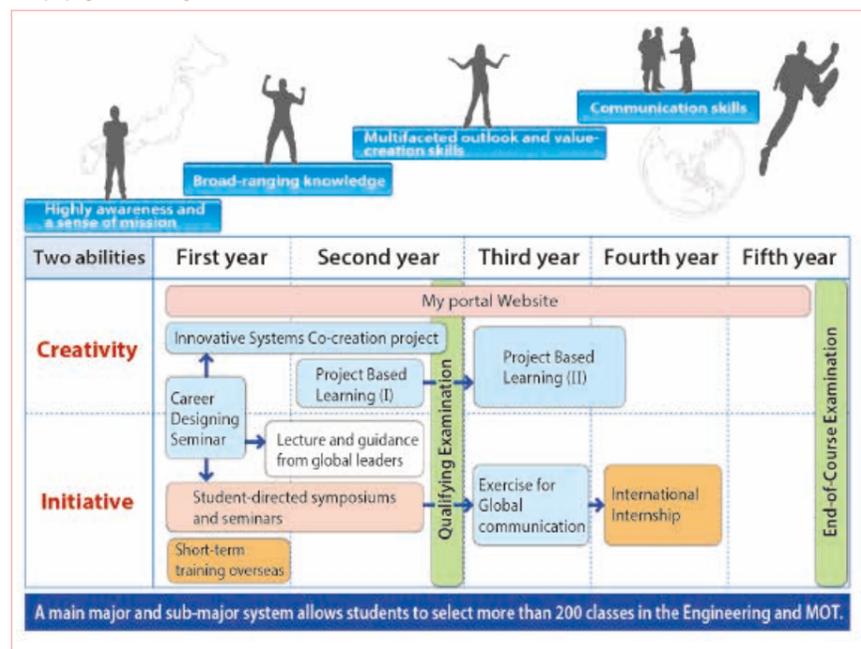
With an eye towards their future career path, students design their own five-year course of study in a career design seminar during their first year. Students can take courses in organic material systems as well as all courses offered by the science and engineering graduate program. By a major and sub-major system, students gain a broad base of knowledge and technical skills rather than being restricted to a single field. They split their time between their main major, sub-major, and value-creating career design curriculum in a 5:3:2 ratio, with organic materials engineering serving as either the major or sub-major. In addition to the natural sciences, students can enhance their skills in marketing management,

management of technology (MOT), and other subjects in the humanities and social sciences. Required courses include the "Career Designing Seminar", "Innovative Systems Co-creation Project", "Project Based Learning I / II", "Exercise for Global Communication", and "iFront International Internship". Moreover, students gain practical skills by planning and executing international symposiums and seminars throughout their five-year period of study, as well as improving their communication and language skills through use of a "My Portal Website". There is robust support in place for students. In addition to mentoring by program instructors, students can also consult with and receive guidance from the program's partner professors from industry and academia.



A discussion on global leadership

A unique program that trains global leaders



A research presentation on short-term overseas training

DATA (FY2018)

[Number of students recruited] 12 a year
 [Percentage of overseas students and mid-career students (shakajijin)] 23% · 0%
 [Matriculated graduate schools, departments, etc.] 2 graduate schools, 16 departments
 (Graduate School of Science and Engineering) (Doctoral Program)
 Organic Materials Engineering, Electrical Engineering and Informatics, Biochemical Engineering, Mechanical Systems Engineering, Management of Technology
 (Graduate School of Science and Engineering) (Master's Program)
 Organic Device Engineering, Mechanical Systems Engineering, Electrical Engineering, Polymer Science and Engineering, Chemistry

and Chemical Engineering, Biochemical Engineering, Bio-System Engineering, Informatics, Management of Technology
 (Graduate School of Organic Materials Science) (Doctoral Program)
 Organic Materials Science
 (Graduate School of Organic Materials Science) (Master's Program)
 Organic Materials Science
 [Collaborating universities in Japan and overseas] 20 universities
 University of California / TU Dresden / Stanford University / Bordeaux University / Purdue University / The University of Minnesota / San Diego State University / University of Augsburg / Justus Liebig University Giessen / Friedrich Schiller University Jena / Worcester Polytechnic Institute / San Jose State University / Pohang University of Science and

Technology / University of Washington / Fudan University / Donghua University / Ku Leuven / ETH Zurich / Kyushu University / Hiroshima University
 [Collaborating organizations] 11 companies, 3 public research institutes, 1 governmental agency
 Panasonic / MITSUBISHI CHEMICAL / TEIJIN / ARKEMA / Entegris Japan / NEC Personal Computers / Toyota Central R&D Labs / USHIO / BASF / Bosch / Thinfilm / AIST / Fraunhofer FEP (Germany) / French Alternative Energy Commission (France) / A*STAR (Singapore)

[Number of program graduates (including anticipated number)] 9 (FY 2017), 6 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 7 to universities, 6 to private companies, 2 to public research institutes

Inquiries: 0238-26-3834 Website: <http://ifront.yz.yamagata-u.ac.jp>

Chiba University

Nurture of Creative Research Leaders in Immune System Regulation and Innovative Therapeutics



The Graduate School of Medical and Pharmaceutical Sciences of Chiba University offers the graduate program in Therapeutics to help students to acquire essential leadership skills such as broader perspectives, balanced judgments, and problem-identification and resolution. Students are expected to be global leaders who meet the ever-diverse medical needs of society.

[Contents of Diploma]

Completion of the LGS program, Nurture of Creative Research Leaders in Immune System Regulation and Innovative Therapeutics, is noted on doctoral diplomas.

Cultivation of future leaders to promote Therapeutics specialized in refractory immune-related diseases

When people's immune systems stop functioning properly, they become susceptible not only to infectious disease, but also allergies and auto-immune diseases. The increase in cancer cases and the chronic inflammation so common in the elderly, such as cardiovascular disease due to hardening of the arteries, are known to be related to the immune system. These disorders, which pose a serious threat to society, can be viewed as all stemming from imbalances in the immune system. Immunology studies have made miraculous progress in recent years, but the reality is that research rarely translates into effective treatment methods. This is in part due to the fact that the field of therapeutics, which systematize researches and implements treatment for diseases, has not established a systematic approach that transcends fundamental and clinical medicine, and because there is no basis for nurturing individuals who can propel the field of therapeutics forward.

Chiba University has an over 100-year history of teaching clinical medicine and has trained many young researchers in the cancer and immunology fields who are engaged in cutting-edge research. This led the medical and pharmaceutical programs to come together to create a program in the Graduate School of Medical and Pharmaceutical Sciences that builds on the university's achievements to train students in therapeutics specialized for treating chronic disorders such as allergies, auto-immune disorders, cancer, arteriosclerosis, and others.



Winter Camp: Great opportunity to evaluate students' leadership qualities through problem solving group works, and to deepen exchanges with business enterprises

Through an industry-academic-government alliance, this program offers students the interdisciplinary training they need to serve as effective leaders in global society.

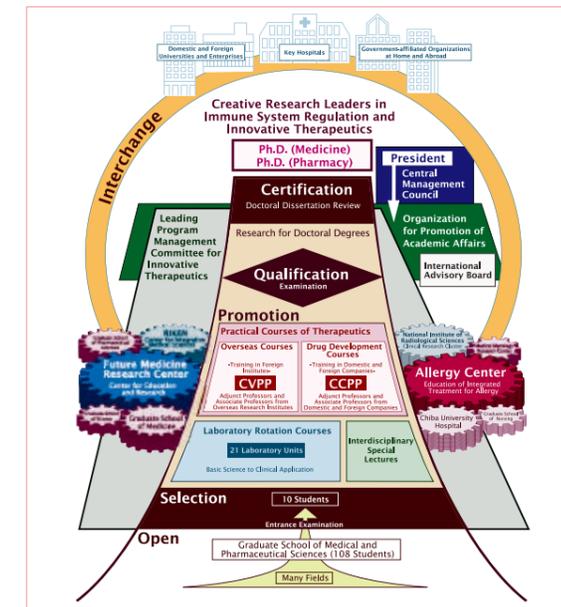
The innovative graduate program that offers fresh approaches

Talented students both in Japan and abroad are carefully selected and engage in original research supported by a multidisciplinary research system that includes professors from a diverse array of fields as well as partners from domestic and overseas companies, academic institutions, and government agencies. The thesis defense evaluation is performed by a committee that includes foreign (visiting) professors. Even after graduating, students can continue to receive career support through a human resource exchange system.

In addition, there is a special education program that includes the "Advanced Education Course," "Rotation Training," the "Chiba Visiting Professor Program," and the "Chiba Career Path Professor Program" provided by individuals from firms and government agencies. Through these various resources, the program nurtures future global leaders who have the skills and mindset to succeed in a number of fields.



Advanced General Education: students plan and host seminar series of speakers from various fields. The past speakers include: astronaut, Nobel Prize winners, and other international luminaries



The comprehensive four-year graduate program: our cutting-edge education program aims to foster leaders with broad knowledge and profound insights

DATA (FY2018)

[Number of students recruited] 10 a year
 [Percentage of overseas students and mid-career students (shakajijin)] 17% · 65%
 [Matriculated graduate schools, departments, etc.] 17 Departments in 5 Graduate Schools, 1 Division in 1 Hospital, 1 Field in 1 Research Center
 (Graduate School of Medicine) Neuroscience, Gastroenterology and Hepatology, Medical Life Science, Health Science, Cancer Science, Advanced Biomedical Science, Advanced Biomedical Science
 (Graduate School of Pharmaceutical Sciences) Genomic Sciences in Drug Discovery, Pharmaceutical Sciences, Environmental and Bioanalytical Sciences, Molecular Pharmacotherapeutics, Advanced

Practical Pharmacology
 (Graduate School of Nursing) Frontier Practice Nursing, Nursing System Management
 (Graduate School of Social Sciences) Basic Law
 (Graduate School of Science) Molecular Biology, Functional Material Chemistry
 (Chiba University Hospital) Clinical Research Center
 (Medical Mycology Research Center) Division of Molecular Immunology
 [Collaborating universities in Japan and overseas] 2 universities
 University of Washington / Uppsala University

[Number of program graduates (including anticipated number)] 15 (FY 2016), 11 (FY 2017), 12 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 14 to universities, 1 to private company, 7 to public research institutes, 13 to medical doctors, 1 to start-up business, 2 to others

Inquiries: 043-226-2817 Website: <http://www.isrit-igp-chiba.jp>

The University of Tokyo

Leading Graduate Course for Frontiers of Mathematical Sciences and Physics (FMSP)



This program fosters people who are mathematically talented with broad vision without being encumbered by the present state of the related fields. The students are trained to have a global viewpoint on mathematics and the sciences. They will be able to create and develop high-level mathematics, as well as handle leading-edge mathematics and contribute to society by applying their skills to industrial and environmental fields.

[Contents of Diploma]

Degrees conferred: <Graduate School of Mathematical Sciences> PhD degrees in Mathematical Sciences, <Graduate School of Science> PhD degrees in Science. Completion of "Leading Graduate Course for Frontiers of Mathematical Sciences and Physics" is noted on the diploma.

Develop Leading-Edge Mathematics for Science with a Global Perspective

This graduate-level educational program is a joint offering by Graduate School of Mathematical Sciences, the Department of Physics, and the Department of Earth and Planetary Science of the University of Tokyo, conducted in collaboration with the Kavli Institute for the Physics and Mathematics of the Universe (Kavli IPMU). The identity of the program is firmly established as a training and research ground for leading-edge mathematics. The objectives are to have a wide view unencumbered by the current state of the related fields, and to train doctoral academics with strong mathematical abilities. The program aims to develop individuals who have a global perspective on mathematics and the sciences, can create and develop high-level mathematics, and can contribute to society by applying their abilities in the fields of industry and the environment.

Since the second half of the 20th century, the abstract formulation of mathematics has advanced, and its applicability to a variety of fields has broadened. Disciplines that use mathematics effectively expand rapidly, and thus people who can grasp the development of mathematical sciences and have cross-disciplinary perspectives are highly sought-after in many fields. Presently, through the collaboration between mathematics and theoretical physics, new fields of study that break the boundaries of conventional disciplines continue to emerge one after the other. What exactly this collaboration will bring about in both mathematics and theoretical physics is not entirely known, and is a major challenge for the coming generation. Students and graduates of the program

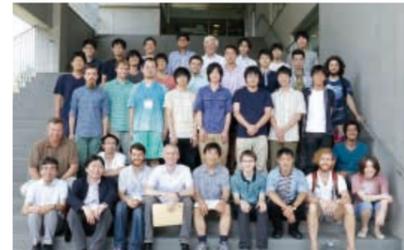


Results presentation for the "Mathematical Research on Real World Problems" in research for problems from industry.

course contribute to solving problems in society and from the world of industry through the development of new methods achievable through leading-edge mathematics. Their achievements include models for atmospheric and ground-based pollutant diffusion, and mathematical models of crystal and interface growth. In this manner, this program cultivates people's ability to create mathematical innovation through leading-edge mathematics.

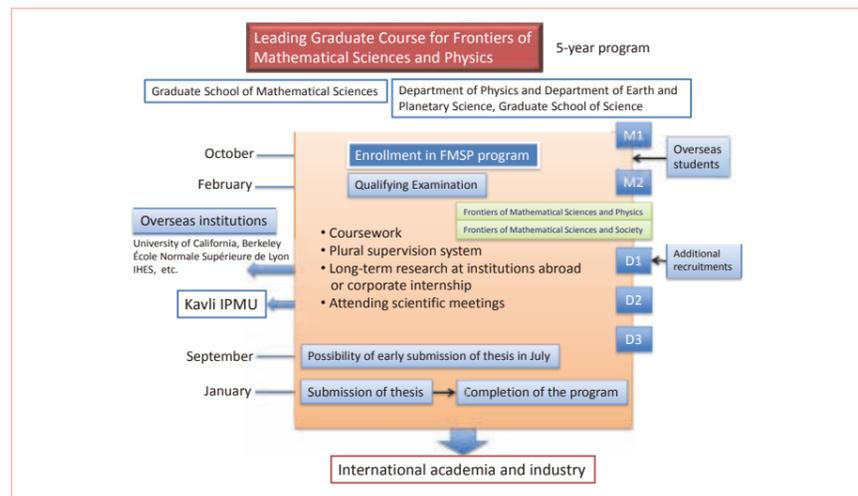
Coursework and Activities that Transcend the Field

In order to learn about the breadth and depth of the connections between mathematics and physics, the Frontiers of Mathematical Sciences and Physics and Frontiers of Mathematical Sciences and Society courses are required. In Frontiers of Mathematical Sciences and Physics, the conventional divisions between academic disciplines are broken, and the foremost and deepest edges of the connections between fields such as mathematics and theoretical physics are explored. In Frontiers of Mathematical Sciences and Society, lecturers are invited



Summer school for "Geometry and Mathematical Physics" hosted at Kavli IPMU in conjunction with the University of California, Berkeley.

from industry, academia, and government. Students have opportunities to touch on diverse issues provided by industry, and develop the ability to apply mathematics to industrial and environmental issues. The program also features tutorial workshops on newly developing research fields in disciplines such as mathematics and theoretical physics, as well as study groups where students can work together with people from industry on real world problems.



To improve competitiveness by working directly with overseas institutions, and learn the breadth and depth of the partnership between mathematics and science through coursework that transcends the field.

Inquiries: 03-5465-7001 Website: <http://fmsp.ms.u-tokyo.ac.jp/>

DATA (FY2018)

[Number of students recruited] 24 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 12% · 0%
 [Matriculated graduate schools, departments, etc.] 2 graduate schools, 3 departments
 <Graduate School of Mathematical Sciences> Mathematical Sciences
 <Graduate School of Science> Physics, Earth and Planetary Science

[Collaborating universities in Japan and overseas] 14 universities
 University of California, Berkeley / California Institute of Technology / École Normale Supérieure de Lyon / École polytechnique / Korea Institute for Advanced Study / Higher School of Economics / Institute of Mathematics for Industry, Kyushu University / University of Cambridge / Massachusetts Institute of Technology / Peking University / Seoul National University / National Taiwan University / Institute des Hautes Études Scientifiques / Mathematical Sciences Research Institute

[Collaborating organizations] 8 companies, 2 public research institutes, 1 local public body
 avex / Nippon Steel & Sumitomo Metal / Takeda Pharmaceutical Company / DENTSU MACROMILL INSIGHT / Tokio Marine & Nichido Risk Consulting / TOWA SEIKI / Nikon / Nissan Motor / National Maritime Research Institute / JAMSTEC / Hirono-Machi, Fukushima

[Number of program graduates (including anticipated number)] 13 (FY 2014), 31 (FY 2015), 31 (FY 2016), 30 (FY 2017), 31 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 84 to universities, 12 to private companies, 9 to public research institutes, 2 to governmental agencies, 4 to others

Nagasaki University



Program for Nurturing Global Leaders in Tropical and Emerging Communicable Diseases

The goal of this course is to foster internationally minded leaders to promote educational research and practice disease control management by using Nagasaki University's tropical and emerging communicable diseases research platforms as its base. Students develop knowledge and technical skills, and use a global perspective to manage tropical as well as emerging communicable diseases posing an international threat.

[Contents of Diploma]

Degrees conferred: PhD degrees in Medical Science. Completion of "Program for Nurturing Global Leaders in Tropical and Emerging Communicable Diseases" is noted on the diploma.

Training International Leaders to Initiate Rapid Responses

Over 80% of the world's population lives in tropical regions, centered mainly in Asia and Africa, where communicable diseases such as malaria and dengue fever still have high incidence rates. In the developing nations that mostly make up these regions, natural and forced environmental conditions, population growth, urbanization and the rapid movement of people by modern transportation provide ideal conditions for the outbreak and international spread of tropical and emerging communicable diseases. These diseases have already threatened the safety and security of other nations with the appearance and spread of severe acute respiratory syndrome (SARS) in 2002, avian flu H5N1 to humans in 2003, the new H1N1 type Influenza virus pandemic in 2009, the 2014 West Africa Ebola outbreak, and the dengue fever outbreak in Japan in 2014. These outbreaks show that there is an urgent need for professionals with strong leadership skills who can initiate effective responses by mobilizing available resources (material, human, and financial) based on solid scientific reasoning.

In order to develop such leadership ability, this program is conducted in English, provides specific English communication classes, gives field-specific specialist training, and provides practical training through a multidisciplinary curriculum.

This curriculum includes training at Nagasaki University's education and research bases in Kenya, and Vietnam, in the field, as well as with international organizations such as the WHO, collaborative education and research institutions, and NGOs. Through these approaches, students develop professional communication skills



International training: Students can receive training at foreign partner institutions on the handling of microorganisms classified as highly hazardous.

and the specialized knowledge to respond to the dangers of disease outbreaks. Our graduates will contribute to building a society that can ensure the safety and security of both Japan and the entire world.

Pursuit of Specialization through International Training and Internships

Starting in their second year, students participate in internships at international institutions such as the WHO, Nagasaki University's international bases, and international NGOs such as Doctors Without Borders. From decision-making to problem solving, students can observe responses to international communicable diseases at all levels, in real emergency management. Through this training, our program aims to have students understand, from a broad viewpoint, the importance of countermeasures against tropical and emerging communicable diseases, and emergency management in communicable diseases. This training helps students develop ideas for their own career paths.



World Mosquito Day: Students host a mosquito-themed event for elementary school students in Nagasaki City.

In addition, under the supervision of research advisors, students receive additional specialization in their field through fieldwork and stays in international organizations and Nagasaki University's foreign bases in Kenya and Vietnam, where well designed training systems have been set up.



This program fosters leaders who have the specialization and internationalization to succeed in controlling tropical and emerging communicable diseases.

Inquiries: 095-819-7161 Website: <http://www.tecd.prj.nagasaki-u.ac.jp/>

DATA (FY2018)

[Number of students recruited] 15 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 76% · 1%
 [Matriculated graduate schools, departments, etc.] 3 graduate schools, 1 department, 1 institute, 1 university institute for education and research
 <Graduate School of Biomedical Sciences> Infection Research
 <Graduate School of Economics>
 <School of Tropical Medicine and Global Health>
 <Institute of Tropical Medicine>
 <Center for Language Studies>

[Collaborating universities in Japan and overseas] 12 universities
 Kenya Research Station, Nagasaki University Institute of Tropical Medicine / Vietnam Research Station, Nagasaki University Institute of Tropical Medicine / University of the Philippines Diliman (Quezon) / University of the Philippines Visayas (Cebu) / Mahidol University (Bangkok) / Thammasat University (Bangkok) / Chiang Mai University (Chiang Mai) / London School Of Hygiene and Tropical Medicine (London) / The University of Liverpool (Liverpool) / University of Nairobi (Nairobi) / Airlangga University (Surabaya) / National University of Singapore (Singapore)
 [Collaborating organizations] 10 public research institutes, 1 governmental agency, 1 international

[Number of program graduates (including anticipated number)] 5 (FY 2016), 10 (FY 2017), 13 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 14 to Universities, 1 to private company, 7 to public research institutes, 2 to medical doctors

National Graduate Institute for Policy Studies

Advanced Program for Global Leaders in the Changing World



Fostering a wide perspective based on deep insight and broad vision, analytical skills to understand concrete issues in governance, and communication skills for international negotiation and discussions, this program trains leader of leaders, who can form bridges between different disciplines and take leading roles in the formation of new policy.

[Contents of Diploma]

Degrees conferred: Ph.D. in Advanced Policy Studies. Completion of "GRIPS Global Governance Program" is noted on the diploma.

Educating Top Leaders to Solve Global Generational Issues

The advancement of globalization has made large changes to the way the world is organized. Today, anything that happens in one corner of the world immediately makes waves throughout the entire planet. Emergent nations, despite playing an increasingly important role in decision-making due to their rapid economic growth, do not yet have power and are not poised to become world leaders. Meanwhile, the changes in governance systems that come about as a result of the rise of the emergent nations has led to the developed nations losing some of their ability to lead the world. Without advancing general decision-making, many difficult problems are sprouting up which cannot be resolved with conventional methods. In order to break through this climate, leaders with skills from many different disciplines are necessary. These leaders require support from profound education rather than thin and fragmented knowledge. They must cross the borders of specialized fields, and have the skill and vision to form bridges between those different specializations. The types of leaders that are needed are those with the ability to decide from a wide perspective: the leader of leaders. In order to foster those leaders, it is not only the height and breadth of their specialization that is important, but also the depth. This program focuses on history and liberal education as foundations that have not previously been seriously considered with a high regard in Japan, and thoroughly trains students' perspectives.



Top leaders from business and other sectors are invited to give lectures and seminars.

A Curriculum that Trains Leader of Leaders

1. Leadership Fundamentals

As global society becomes increasingly complicated, if top leaders are to make important judgments and decisions based on deep consideration of various facets including nations, institutions, and the business world, they must understand the concrete issues within a broad framework and be able to grasp the roots of these issues. Thus, history is one of the program's base courses, serving to foster a broad vision with which to grasp the macro context of various issues that the world faces today. Lecturers are invited from both national and foreign governments, industry, and educational institutions to lecture based on their own experiences. This teaches students a fundamental grounding and a variety of perspectives.

2. Expertise and Analytical Skill on Specific Policy Issues

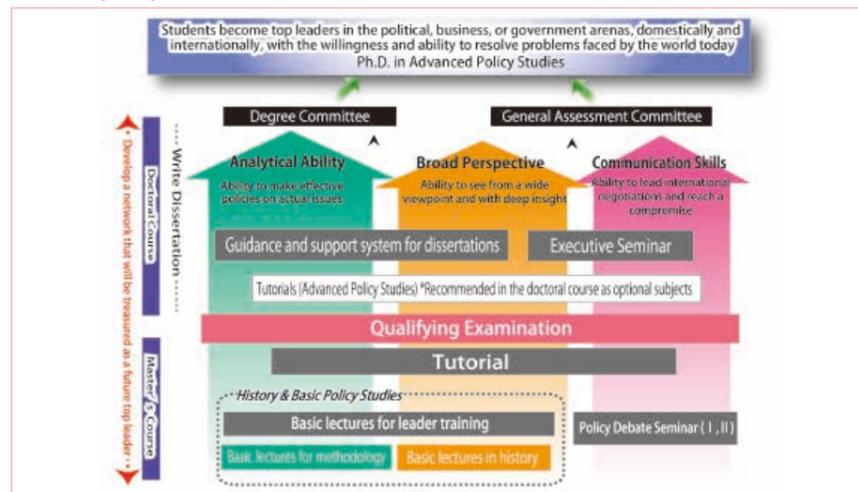
In order to deal with the variety of issues facing the world today, deep understanding and analytical prowess on specific issues is necessary. The fundamental knowledge on these issues is acquired through base lectures on



Students from various countries.

methodology in politics, economics, international relations, scientific and technological innovation, management of institutional frameworks, and more. On that basis, tutorials grouped into four different clusters (global, developed countries, emerging countries, and developing countries) concentrate on political issues specific to each cluster, further developing students' understanding and analytical skills by deep discussions.

Overview of Degree Program



Thorough training over five years, the analytical skills, broad vision, and communication skills necessary for global top leaders are developed.

DATA (FY2018)

[Number of students recruited] About 12 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 86% · 93%
 [Matriculated graduate schools, departments, etc.] 1 graduate school, 1 department
 (Graduate School of Policy Studies) Policy Studies
 [Collaborating organizations] 1 public research institute
 Japan International Cooperation Agency (JICA)

[Number of program graduates (including anticipated number)] 1 (FY 2017), 8 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 7 to governmental agencies, 1 to start-up business, 1 to other

Inquiries: 03-6439-6044 Website: <http://www.grips.ac.jp/g-cube/jp>

Shinshu University

Global Leader Program for Fiber Renaissance



Cultivate human resources with the following skills: 1. Specialized knowledge of and the ability to apply textiles and fibers. 2. Vision to tie together multiple issues in society with fiber technology. 3. Ability to create new values. 4. Skills to connect everything from basic research to applied research, production, and business research. 5. Management skills to lead projects.

[Contents of Diploma]

Degrees conferred: PhD degrees in either Engineering, Agricultural Science, Science, Biomedical Engineering, or Philosophy. Completion of "Global Leader Program for Fiber Renaissance" is noted on the diploma.

Fostering Global Leaders and Innovators in the Fiber Renaissance

The new textile industry, being an important materials industry, harbors the potential to contribute to solving many of the world's problems. Textiles and fibers are already applied in the wide range of fields including transport, aerospace, energy, optical communications, construction, civil engineering, environment, industrial fiber, farming, medicine, health, protective clothing, sports, and apparel. Fiber engineering will fulfill an increasingly important role in solving the many challenges surrounding society in the future. Today, there is no question that the world of fiber is in the midst of a "Fiber Renaissance." This program trains the global leaders of the industrial world.

A Competitive Environment and Practical Education

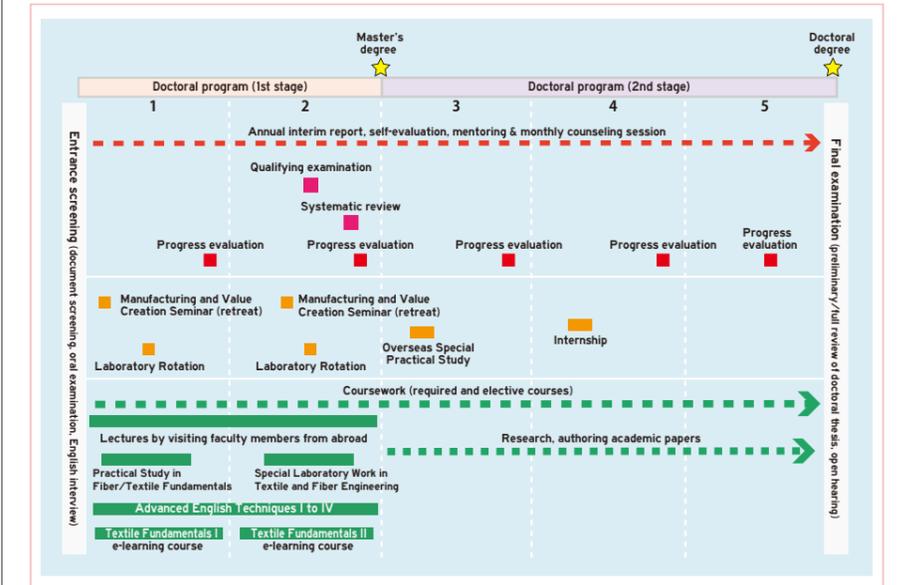
Fiber engineering is a fundamental technology for all industry. In our program, we seek to foster specialists with a wide range of knowledge on textiles. For the first two years of doctoral courses, we offer students accommodations and provides an environment in which students advance education and research together with mentor professors, young researchers, and foreign invitee researchers. In addition, through our annual study camp (including workshops held jointly with foreign universities) and research laboratory rotation system, students learn teamwork skills and earn a wide range of experience. In the latter three years of doctoral courses, the program provides practical education through our on-campus pilot



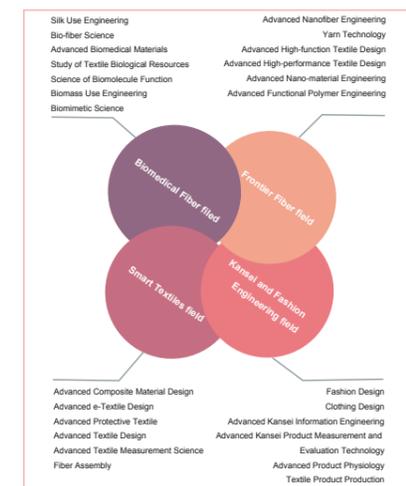
Intensive courses by instructors invited from abroad.

factory (the Fiber Innovation Incubator facility), education in real business settings, project research in industries, long-term internships in industries (including international opportunities), and special practical training abroad. English education is also emphasized. Using our internally developed education system, students participate in six hours a week of lectures in the format of discussions by native English speakers.

From matriculation to course completion



An intense curriculum designed to teach a wide range of issues in textiles and fibers, plus foster English, practical skills, and interpersonal abilities.



Four areas of coursework

DATA (FY2018)

[Number of students recruited] 10 a year
 [Percentage of overseas students and mid-career students (shakaijin)] 49% · 0%
 [Matriculated graduate schools, departments, etc.] 2 graduate schools, 4 departments
 (Graduate School of Science and Technology) Department of Textile Science and Technology, Department of Biomedical Engineering
 (Graduate School of Medicine, Science and Technology) Department of Science and Technology, Department of

[Number of program graduates (including anticipated number)] 2 (FY 2017), 3 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 1 to university, 4 to private companies

Inquiries: 0268-21-5309 Website: <http://www.shinshu-u.ac.jp/project/leading/>

Biomedical Engineering
 [Collaborating universities in Japan and overseas] 9 universities
 The University of Tokyo / Kyoto University / Tokyo Institute of Technology / Tokyo University of Agriculture and Technology / North Carolina State University / The Hong Kong Polytechnic University / The University of Manchester / Technische Universität Dresden / L'Ecole Nationale Supérieure des Arts et Industries Textiles (ENSAIT)

[Collaborating organizations] 6 companies, 1 public research institute, 1 governmental agency
 Japan Chemical Fibers Association / The Japan Carbon Fiber Manufacturers Association / All Nippon Nonwovens Association / Japan Textile Finishers' Association / JAPAN TEXTILE PROFESSIONAL ENGINEER CENTER / The Society of Fiber Science and Technology, Japan / Japan Aerospace Exploration Agency / Ministry of Economy, Trade and Industry

Shiga University of Medical Science

Leading graduate program for reducing the burden of non-communicable disease (NCD) in the Asian Pacific region



This program fosters well-balanced specialists of NCD strategies, who have medical knowledge relating to NCDs, a high level of technical proficiency in theory of epidemiology and biostatistics, conceptual abilities for the improvement of public health in Asia, and social networks spanning industry, academia, and government.

[Contents of Diploma]

Degrees conferred: PhD degrees in Medical Science. Completion of "Leading Graduate Program for Reducing the Burden of Non-Communicable Disease in the Asian Pacific region" is noted on the diploma.

Educating Leaders to Combat Non-Communicable Diseases (NCD) in Asia

Non-communicable diseases (NCD) are one of the core health issues in the 21st century. The Secretary General of the United Nations has placed conquering NCDs as one of the missions of the United Nations and, including activities such as the UN NCD Summit, is seeking collaboration between government officials and academics from all around the world. Examples of NCDs include cancer and cerebral or cardiovascular diseases, as well as their risk factors: diabetes, high blood pressure, hyperlipidemia, and others. They manifest themselves as increases in lifestyle-related diseases, and are a serious health concern especially in Asia's emerging nations. In order to solve the health issues that plague Asia's emerging nations, and to realize improvements in health and lifespans, it is necessary to train leaders who will conquer NCDs in Asia. The Shiga University of Medical Science's Program for Reducing the Burden of NCD in Asia is a special graduate program that aims to train the next generation of leaders who will fight against NCDs. This program trains well-balanced leaders who have medical knowledge relating to NCDs, a high level of technical proficiency in theory of epidemiology and biostatistics, conceptual abilities for the improvement of public health in Asia, and social networks spanning industry, academia, and government. Through this program, we develop NCD strategy specialists who



Japan's only international education base for NCD epidemiology, the Center for Epidemiologic Research in Asia.

can excel as Asia's top leaders in a broad range of fields, both nationally and internationally, in industry, academia, and government.

Special Education Courses for Specialization

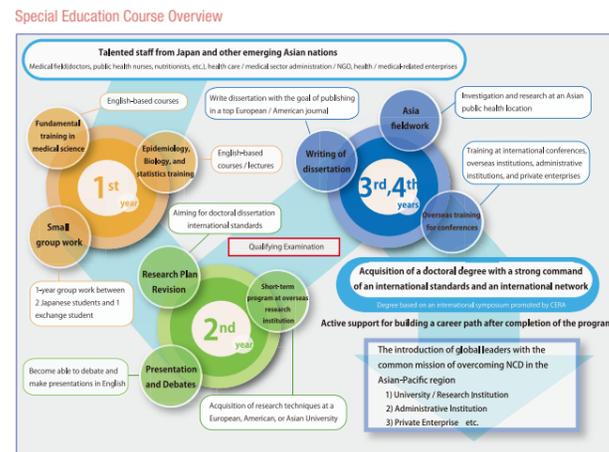
Leveraging the mobility of a single-department medical university, we reconstructed our post-graduate education system, centering it around conquering NCDs. We set up the new "Program for Reducing the Burden of Non-Communicable Disease in the Asian Pacific Region" in the Leading Medical Researcher course, one of our newly establishing three courses at Graduate School. We have prioritized investment in educational and research materials in the school, and with our system of mobilization around the entire school, we offer a flexible post-graduate education that can adjust to the various individual traits of its participants (differing nationalities, theoretical views, etc.). In addition, we promote education that focuses on English, by proactively hiring foreign teachers who are working or will work in Japan. Moreover, fieldworks in the Asian public health sectors, internships in private and governmental and



Students analyze virtual data using statistical analysis software (SAS) in a hands-on seminar on statistics.

international agencies for health and medical treatment, and participation in foreign universities' researches are mandatory elements of the curriculum. This trains students' abilities to act in the real world, and accumulates valuable experiences in international academia and other areas.

This program sets itself apart by providing an academic environment where students can develop their English communication skills and abilities to argue academically in an international context. Completing these activities with an international sensibility helps students to fulfill their capacity to become leaders in the fight against NCDs in Asia.



An education system that takes full advantage of an epidemiology database accumulated over many years, and the human network of national/international shared research and Asian partner schools.

Inquiries: 077-548-3657 Website: <https://cera.shiga-med.ac.jp/ncdlead/>

DATA (FY2018)

[Number of students recruited] 9 a year
 [Percentage of overseas students and mid-career students (shakajijin)] 60% · 10%
 [Matriculated graduate schools, departments, etc.]
 1 graduate school, 1 specialty
 (Graduate School of Medicine) Medicine

[Collaborating universities in Japan and overseas]
 7 universities
 Imperial College London / Beijing University / University of Pittsburgh / Johns Hopkins University / Northwestern University / Harvard University / University of Michigan

[Collaborating organizations]
 4 companies, 3 public research institutes, 1 governmental agency, 1 local public body, 2 international organizations
 Omron / Omron Healthcare / GlaxoSmithKline / George Institute for Global Health / National Heart Foundation Hospital & Research Institute, Bangladesh / Aichi Cancer Center Research Institute / National Institutes of Biomedical Innovation, Health and Nutrition / Ministry of Health, Labour and Welfare / Shiga Prefecture / WHO / WHO Centre for Health Development

[Number of program graduates (including anticipated number)] 5 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 1 to university, 1 to public research institute, 1 to medical doctor

Kyoto University

Leading Graduate Program in Primatology and Wildlife Science



With primatology as its foundation, an emerging field of academic study called "Wildlife Science" that targets endangered species has been on the verge of establishment. Through fieldwork as its base, a comprehensive understanding of the human mind, body, life and genome, as well as engaging in hands-on activities that aims for "the well-being of the world" are all vital to this establishment, aiming to nurture a global leader that interconnects this academic field to one's accomplishments.

[Contents of Diploma]

Completion of the PWS program, Leading Graduate Program in Primatology and Wildlife Science, is noted on doctoral diplomas.

Kyoto University's Exclusive "Only One" and "Fieldwork"

1. **Conservation specialists of international organization(s) such as the United Nations and NGO:** Japan is an important donor country to the United Nations. However, the number of people employed in this role is extremely low. There is a need to train human resources with outstanding communication skills in foreign languages, who can work at NGOs and the UN and its associated organizations. The University has held numerous field survey bases abroad, and has established a six advanced-country partnership between Japan, Germany, the USA, the UK, France, and Italy. In addition, collaboration systems through MOU have also been set up with leading institutions in habitat research. This program trains international practitioners with leadership and research abilities in wildlife science.

2. **Curator (Zoo, Museum, Aquarium, etc.):** Zoos and aquariums are deemed to be types of museums under the law. In Europe and America, a curator is someone who performs both research and education, and is also deeply intertwined in the management of their institution. However, in Japan, professionals who can unify the academic and practical issues in the coexistence of humans and other animals, and who have a foundation in fieldwork with wild animals are truly rare. This program aims to train and teach communication skills so that a post-doctoral can communicate the results of their scientific research to the public, in an easily understandable matter, through his/her activities at museums, etc.

3. **Outreach workers investing a great length of time in outreach activities in a specific country and society:** Since 1957, Kyoto University has amassed over



Kyoto University has numerous wildlife research bases around the world, and conducts research education in partnership with overseas institutions.

half a century of ties to Bhutan. The mutual exchanges in recent years have started with regional medicine that has field medicine as its central pillar, and include contributions toward the establishment of Bhutan's first medical university and school. Kyoto University will continue to expand these efforts globally. As a university, we require a comprehensive system of collaboration across diverse fields including culture, education, religion, disaster prevention, biology, farming, and the environment. We cultivate well-rounded leaders capable of undertaking long-term outreach activities dedicated to a single country.

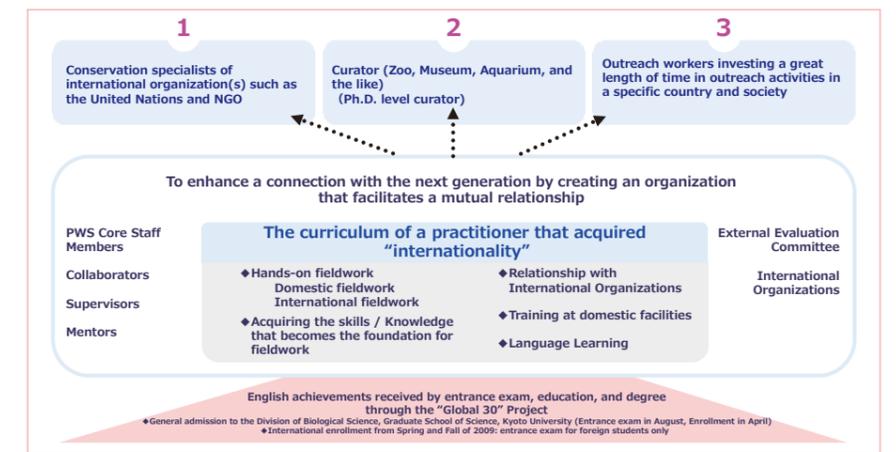
Pioneer Work: Cultivating Pioneering Spirit through Fieldwork

A variety of hands-on field courses are required. These include the Koshima Field Science Course, where students observe the wild Japanese macaques (a protected species of animal) in Kohshima Island, and the Yakushima Field Science Course and Genome Field Science Course in which students must use their English abilities to perform fieldwork together with students from abroad, and run experiments and analyses on the test samples they collect. Other required field courses include the Sasagamine Field Science Course, where students learn fundamental wildlife



Kyoto University has a large array of research facilities in Japan, including the Koshima Field Station, the Kumamoto Sanctuary, and PWS House Yakushima.

survival skills at the Kyoto University Hütte in Myoko-Highland, and activities at Kyoto University's research facilities in Japan (such as the Kumamoto Sanctuary) and through partner institutions (such as the Japan Monkey Centre). In addition, students organize self-planned fieldwork in countries where wild animals are found, and/or at leading research institutions in Japan, Germany, the USA, the UK, France, and Italy. These fieldworks help students who complete the program to improve their planning skills for their own development, and help them connect with their objectives of becoming conservation specialists, curators, outreach activists, and more.



A curriculum that nurtures global leaders interconnecting academic field and one's accomplishment using fieldwork as its base.

Inquiries: 075-771-4388 Website: <http://www.wildlife-science.org>

DATA (FY2018)

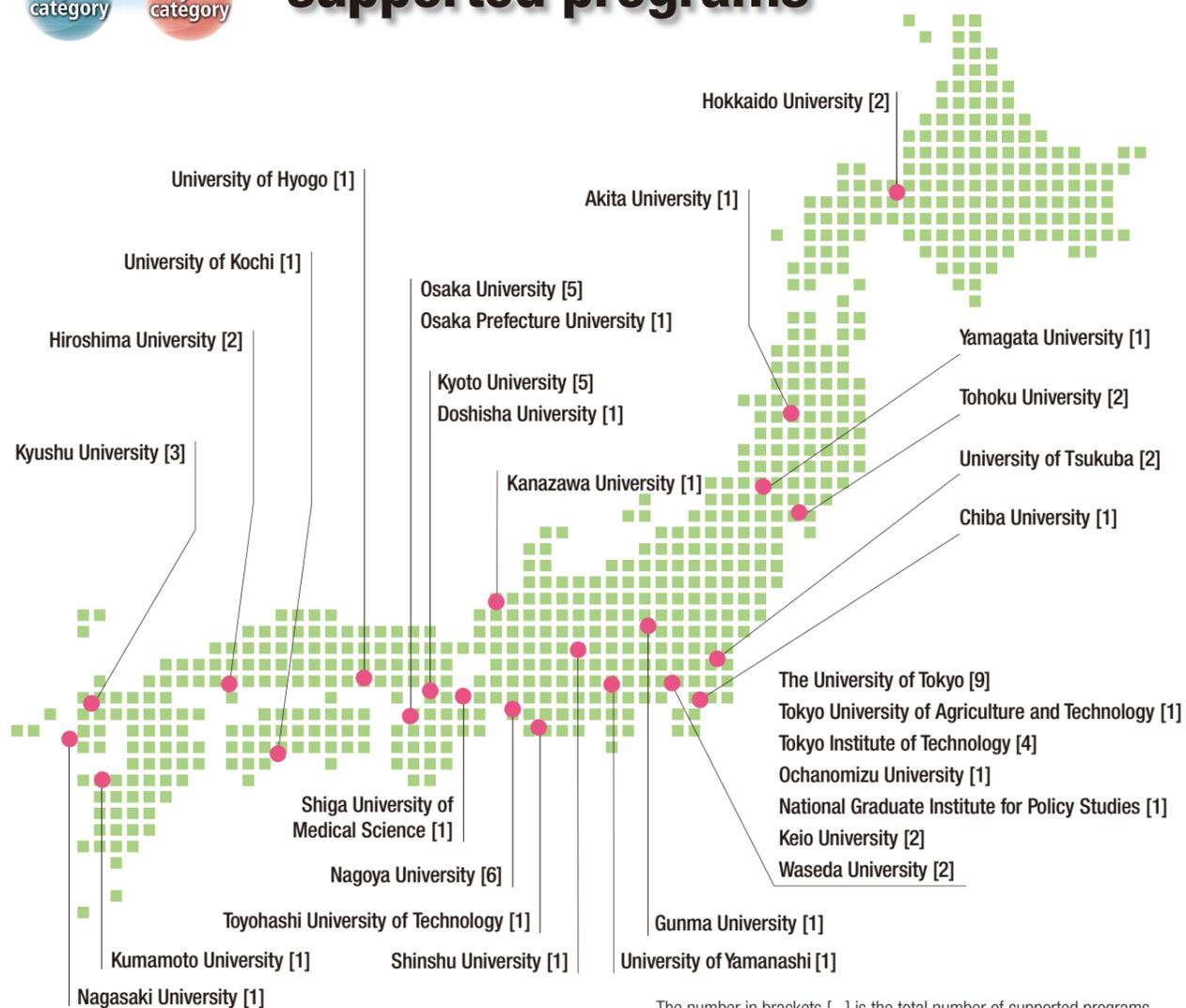
[Number of students recruited] 5-10 a year
 [Percentage of overseas students and mid-career students (shakajijin)] 42% · 0%
 [Matriculated graduate schools, departments, etc.]
 1 graduate school, 1 division; 1 institute; 1 center
 (Graduate School of Science) Division of Biological Science (Primate Research Center) Evolution and Phylogeny, Ecology and Social Behavior, Cognitive Science, Neuroscience, Cellular and Molecular Biology (Wildlife Research Center) Comparative Cognitive Science, Zoo Science, Conservation Biology, Human Evolutionary Science, Health and Longevity Science, Welfare and Longevity Research

[New graduate schools and departments (etc.) established for the program]
 TBD (To Be Determined)
 [Collaborating universities in Japan and overseas] 10 universities
 University of California San Diego / Harvard University / University of Cambridge / University of Ghana / Indian Institute of Science / Chulalongkorn University / Universiti Sains Malaysia / Universiti Malaysia Sabah / Royal University of Bhutan / Ecole Normale Supérieure
 [Collaborating organizations] 6 companies, 6 public research institutes, 11 local public bodies, 1 other
 Japan Monkey Centre / Port of Nagoya Public Aquarium / Kyoto

[Number of program graduates (including anticipated number)] 1 (FY 2016), 1 (FY 2017), 3 (FY 2018)
 [Main destinations of program graduates (including anticipated destinations)] 4 to universities



List of universities implementing supported programs



All All-around category
Com [] Composite category : [Env] Environment [Lif] Life Science & Health [Mat] Materials [Inf] Information [Plu] Pluralistic Society [Saf] Safety & Security [Cro] Cross-cutting Themes
Only Only-one category

University	Code	Period (FY)	Category	Program Title	Page
Hokkaido University	F01	2011-2017	Only	Fostering Global Leaders in Veterinary Science toward Contributing to "One Health"	55
	Q01	2013-2019	Com [Mat]	Ambitious Leader's Program Fostering Future Leaders to Open New Frontiers in Materials Science	30
Tohoku University	M01	2012-2018	Com [Saf]	Inter-Graduate School Doctoral Degree Program on Science for Global Safety	47
	Q02	2013-2019	Com [Mat]	Interdepartmental Doctoral Degree Program for Multi-dimensional Materials Science Leaders	31
Akita University	001	2012-2018	Only	New Frontier Leader Program for Rare-metals and Resources	61
Yamagata University	002	2012-2018	Only	Innovative Flex Course for Frontier Organic Material Systems (iFront)	62
University of Tsukuba	C01	2011-2017	Com [Lif]	Ph.D.Program in Human Biology	21
	R01	2013-2019	Com [Inf]	Ph.D. Program in Empowerment Informatics	36
Gunma University	F02	2011-2017	Only	Program for Cultivating Global Leaders in Heavy Ion Therapeutics and Engineering	56
Chiba University	003	2012-2018	Only	Nurture of Creative Research Leaders in Immune System Regulation and Innovative Therapeutics	63
The University of Tokyo	B01	2011-2017	Com [Env]	Graduate Program in Sustainability Science: Global Leadership Initiative (GPSS-GLI)	15
	C02	2011-2017	Com [Lif]	Graduate Program for Leaders in Life Innovation (GPLLI)	22
	E01	2011-2017	Com [Cro]	Advanced Leading Graduate Course for Photon Science (ALPS)	49
	J01	2012-2018	Com [Mat]	Materials Education program for the future leaders in Research, Industry and Technology (MERIT)	27
	K01	2012-2018	Com [Inf]	Graduate Program for Social ICT Global Creative Leaders (GCL)	33

University	Code	Period (FY)	Category	Program Title	Page
The University of Tokyo	O04	2012-2018	Only	Leading Graduate Course for Frontiers of Mathematical Sciences and Physics (FMSP)	64
	P01	2013-2019	All	Global Leader Program for Social Design and Management (GSDM)	13
	S01	2013-2019	Com [Plu]	Integrated Human Sciences Program for Cultural Diversity (IHS)	43
	T01	2013-2019	Com [Cro]	Graduate Program in Gerontology : Global Leadership initiative for an Age-Friendly Society (GLAFS)	53
Tokyo University of Agriculture and Technology	H01	2012-2018	Com [Env]	Creation of the Practical Science Leading Graduate School for Green and Clean Food Production	19
Tokyo Institute of Technology	B02	2011-2017	Com [Env]	Academy for Co-creative Education of Environment and Energy Science (ACEEES)	16
	C03	2011-2017	Com [Lif]	Education Academy of Computational Life Sciences (ACLS)	23
	F03	2011-2017	Only	Global Human Resource Development Program for Nuclear Safety and Security (U-ATOM)	57
	G01	2012-2018	All	Academy for Global Leadership (AGL)	11
Ochanomizu University	T02	2013-2019	Com [Cro]	Fostering Long-Term Creativity and Innovation with Science and Technology Disciplines Based on Ochanomizu Spirit "Migakazuba" in the Next Generation of Global Leaders	54
National Graduate Institute for Policy Studies	U01	2013-2019	Only	Advanced Program for Global Leaders in the Changing World	66
Kanazawa University	L01	2012-2018	Com [Plu]	Graduate Program in Cultural Resource Management	40
University of Yamanashi	F04	2011-2017	Only	Green Energy Conversion Science and Technology	58
Shinshu University	U02	2013-2019	Only	Global Leader Program for Fiber Renaissance	67
Nagoya University	B03	2011-2017	Com [Env]	Integrative Graduate Education and Research Program in Green Natural Sciences	17
	F05	2011-2017	Only	The Program for Cross-Border Legal Institution Design	59
	G02	2012-2018	All	PhD Professional: Gateway to Success in Frontier Asia	12
	N01	2012-2018	Com [Cro]	Leadership Development Program for Space Exploration and Research	51
	R02	2013-2019	Com [Inf]	Graduate Program for Real-world Data Circulation Leaders	37
S02	2013-2019	Com [Plu]	Women Leaders Program to Promote Well-being in Asia	44	
Toyohashi University of Technology	R03	2013-2019	Com [Inf]	Innovative program for training brain-science-information-architects by analysis of massive quantities of highly technical information about the brain	38
Shiga University of Medical Science	U03	2013-2019	Only	Leading graduate program for reducing the burden of non-communicable disease (NCD) in the Asian Pacific region	68
Kyoto University	A01	2011-2017	All	Graduate School of Advanced Leadership Studies, Kyoto University	8
	D01	2011-2017	Com [Saf]	Inter-Graduate School Program for Sustainable Development and Survivable Societies	46
	I01	2012-2018	Com [Lif]	Training Program of Leaders for Integrated Medical System for Fruitful Healthy-Longevity Society	25
	K02	2012-2018	Com [Inf]	Collaborative Graduate Program in Design	34
	U04	2013-2019	Only	Leading Graduate Program in Primatology and Wildlife Science	69
Osaka University	A02	2011-2017	All	Cross-Boundary Innovation Program	9
	C04	2011-2017	Com [Lif]	Interdisciplinary Program for Biomedical Sciences (IPBS)	24
	J02	2012-2018	Com [Mat]	Interactive Materials Science Cadet Program (IMSC)	28
	K03	2012-2018	Com [Inf]	Humanware Innovation Program	35
	L02	2012-2018	Com [Plu]	Doctoral Program for Multicultural Innovation	41
Hiroshima University	E02	2011-2017	Com [Cro]	Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster	50
	S03	2013-2019	Com [Plu]	Taoyaka Program for creating a flexible, enduring, peaceful society	45
Kyushu University	H02	2012-2018	Com [Env]	Advanced Graduate Program in Global Strategy for Green Asia	20
	J03	2012-2018	Com [Mat]	Development of Global Research Leaders in Molecular Systems for Devices and Establishment of an International Education and Research Center	29
P02	2013-2019	All	Graduate Education and Research Training Program in Decision Science for a Sustainable Society	14	
Nagasaki University	O05	2012-2018	Only	Program for Nurturing Global Leaders in Tropical and Emerging Communicable Diseases	65
Kumamoto University	I02	2012-2018	Com [Lif]	HIGO (Health life science: Interdisciplinary and Global Oriented) Program	26
Osaka Prefecture University*	Q03	2013-2019	Com [Mat]	Graduate Course for System Inspired Leaders in Material Science (SIMS)	32
University of Hyogo	F06	2011-2017	Only	Next generation picobiology pioneered by photon sciences	60
University of Kochi**	M02	2012-2018	Com [Saf]	Disaster Nursing Global Leader Degree Program	48
Keio University	A03	2011-2017	All	Science for Development of Super Mature Society	10
	B04	2011-2017	Com [Env]	Global Environmental System Leaders Program	18
Waseda University	N02	2012-2018	Com [Cro]	Leading Graduate Program in Science and Engineering	52
	R04	2013-2019	Com [Inf]	Graduate Program for Embodiment Informatics	39
Doshisha University	L03	2012-2018	Com [Plu]	Global Resource Management	42

* Program implemented jointly by Osaka City University.
 ** Program implemented jointly by University of Hyogo, Tokyo Medical and Dental University, Chiba University, and Japanese Red Cross College of Nursing.



State of employment in industrial sector of program graduates (FY 2013-2017)

Type of Industry	Number of program graduates	Company names
Manufacture of chemical and allied products, Manufacture of petroleum and coal products	105	DIC / JSR / P&G Innovation Godo Kaisha / Kaneka Corporation / GlaxoSmithKline K.K. / KURARAY CO.,LTD. / KUMIAI CHEMICAL INDUSTRY CO., LTD. / 3M Japan Limited / TSUMURA & CO. / Novartis Pharma / Lion Corporation / Asahi Kasei Corporation / Asahi Kasei Pharma Corporation / Kyowa Chemical Industry Co.,Ltd. / Kyowa Hakko Kirin Co., Ltd. / Mitsui Chemicals, Inc. / MITSUI CHEMICALS AGRO, INC. / MITSUI CHEMICAL ANALYSIS & CONSULTING SERVICE, INC. / Mitsubishi Chemical Corporation / Sumitomo Chemical Co., Ltd. / SUMITOMO SEIKA CHEMICALS CO.,LTD. / Sumitomo Riko Company Limited. / SHOWA DENKO K.K. / Shin-Etsu Chemical Co., Ltd. / SEKISUI CHEMICAL Co., Ltd. / TAIYO HOLDINGS CO., LTD. / OSAKA SODA CO.,LTD. / Teijin Limited / Toyo Gosei Co., Ltd. / JGC Catalysts and Chemicals Ltd. / Nissan Chemical Industries / FUJIFILM Corporation / Idemitsu Kosan Co.,Ltd. / KUREHA / The Dow Chemical Company JAPAN / LG Chem Ltd. / NICHIA CORPORATION
Manufacturer of pharmaceuticals	57	GE Healthcare Japan / Astellas Pharma Inc. / Eisai Co., Ltd. / Thermo Fisher Scientific Inc. / SHIONOGI & CO.,LTD. / Sato Pharmaceutical Co.,Ltd. / Otsuka Pharmaceutical Co., Ltd. / Sumitomo Dainippon Pharma Co., Ltd. / Daiichi Sankyo Co., Ltd. / Chugai Pharmaceutical Co., Ltd. / Mitsubishi Tanabe Pharma Corporation / Takeda Pharmaceutical Co., Ltd. / ROHTO Pharmaceutical Co., Ltd. / Wakunaga Pharmaceutical Co., Ltd. / Sawai Pharmaceutical Co., Ltd. / Nihon Medi-Physics Co., Ltd.
Manufacture of electrical machinery, equipment and supplies, Manufacture of information and communication electronics equipment	58	NEC Corporation / NEC Central Research Laboratories / Agilent Technologies / KONICA MINOLTA, INC. / SHARP CORPORATION / TEPCO SYSTEMS CORPORATION / NIKON CORPORATION / Panasonic Corporation / Mitsubishi Electric Corporation / Toshiba Corporation / Toshiba Electronic Devices & Storage Corporation / Hitachi, Ltd.
Miscellaneous professional and technical services	53	Carabao Center National Headquarters and Gene Pool (Philippines) / China Patent Agent (H.K.) LTD. (China) / EMT-INRS / EPS Associates Co., Ltd. / Planning & Development Workshop (Indonesia) / TCO2 Co.Ltd / Tecnos Data Science Engineering / Tura Consulting Company (Russia) / Arthur D. Little Japan, Inc. / IMS Japan K.K. / Asubio Pharma Co., Ltd. / AIMNEXT Inc. / Software Cradle Co., Ltd. / Deloitte Tohmatsu Consulting LLC / NEOREX Co., Ltd. / The Boston Consulting Group / McKinsey & Company, Inc. / MEITEC Fielders Co.,Ltd / Mobile Factory, Inc. / EUGLENA CO.LTD. / Recruit Communications Co.,Ltd. / Recruit Staffing Co., Ltd. / Educational Corporation Osaka Jikei College / Tecnos Japan Inc. / JEC / Advanced Simulation Technology Of Mechanics R&D, Co., Ltd. / TOYO INK SC HOLDINGS CO., LTD. / Toyo Sangyo K.K. / Hitachi Solutions, Ltd. / Mitsubishi Research Institute, Inc. / AFRICAN DEVELOPMENT BANK
Information and communications	36	C.T.Co.Limited / IHI Scube Co., Ltd. / KDDI CORPORATION / NTT DATA Corporation / NTT DATA Mathematical Systems Inc. / NTT Communication Science Laboratories / NTT Basic Research Laboratories / Preferred Networks / Atrac, Inc. / Weathernews Inc. / OMRON SOFTWARE Co., Ltd. (China) / NAVITIME JAPAN Co., Ltd. / Works Applications Co.,Ltd. / ITOCHU Techno-Solutions Corporation / Rakuten, Inc. / SHINKOSHA CO., LTD. / Microsoft Japan Co., Ltd. / NIPPON TELEGRAPH AND TELEPHONE CORPORATION / FUJITSU LABORATORIES LTD. / Internet Initiative Japan Inc.
Electronic parts, devices and electronic circuits	40	FDK / JOLED / Qualcomm (US) / DENSO CORPORATION / Morpho, Inc. / Asahi Kasei Microdevices Corporation / SEISHIN TRADING CO.,LTD. / TOKYO Electron Ltd. / TOKYO ELECTRON MIYAGI LIMITED / IBM Japan, Ltd. / Nippon Chemi-con / Hitachi Chemical Company, Ltd. / FUJII ELECTRIC Co., Ltd. / maxon motor ag (Switzerland) / TDK Corporation / Cisco Systems G.K. / Murata Manufacturing Co., Ltd.
Miscellaneous manufacturing industries	26	Bosch (Germany) / Sunstar Inc. / Daiseiki Co., Ltd. / Terumo Corporation / Kao Corporation / Shiseido Co., Ltd. / SEIKO PMC CORPORATION / Shimadzu Corporation / NIHON NOHYAKU CO.,LTD. / HORIBA, Ltd. / Mitsubishi Heavy Industries, Ltd.
Manufacture of iron and steel iron industries, Manufacture of non-ferrous metals and products, Manufacture of fabricated metal products	20	DOWA HOLDINGS Co., Ltd. / JX Nippon Mining & Metals Corporation / Outotec (Finland) / UACJ / OSG Corporation / Furukawa Electric Co., Ltd. / Sumitomo Heavy Industries, Ltd. / Sumitomo Electric Industries, Ltd. / NISSEI ELECTRIC CO., LTD. / Hitachi Metals, Ltd. / JFE Steel Corporation / Kobe Steel, Ltd. / JTEKT CORPORATION / Mitsubishi Materials Corporation
Manufacture of transportation equipment	15	Cataler / TOYOTA MOTOR CORPORATION / Bridgestone Corporation / Mazda Motor Corporation / Honda R&D Co.,Ltd. / Kawasaki Heavy Industries, Ltd. Aerospace Systems Company / Nissan Motor Co., Ltd. / Hino Motors, Ltd.
Manufacture of general-purpose machinery, Manufacture of production machinery, Manufacture of business oriented machinery	9	DMG MORI Co.,Ltd. / KEYENCE CORPORATION / Sunstar Engineering Inc. / FANUC CORPORATION / MAYEKAWA MFG. CO., LTD. / YANMAR / Yokogawa Electric Corporation / Mitutoyo Corporation
Construction	9	ALMEC CORPORATION / KOZO KEIKAKU ENGINEERING Inc. / Swing Corporation / Takenaka Corporation / Riofil Corporation Inc / PENTA-OCEAN CONSTRUCTION CO., LTD. / TAISEI CORPORATION
Finance	11	PricewaterhouseCoopers Aarata LLC / Mizuho-DL Financial Technology Co., Ltd. / Mitsubishi UFJ Morgan Stanley Securities Co., Ltd. / Mitsubishi UFJ Research and Consulting Co.,Ltd. / Deloitte Touche Tohmatsu LLC
Manufacture of textile mill products	8	Toray Industries, Inc. / Nitto Boseki Co., Ltd.
Compound services	6	Core Concept Technologies Inc. / DIGITAL PROCESS LTD. / Railway Technical Research Institute / NIPPON KOEI CO., LTD. / Leave a Nest Co., Ltd
Manufacture of food and beverages, tobacco, and feed	12	ITOCHU FEED MILLS CO., LTD. / Japan Tobacco Inc. / HONBUSANKEI Co., Ltd. / Ajinomoto Co., Inc
Medical services, public health and hygiene	7	Sysmex Corporation / Center for collaborative management of wildlife / LSI Medience Corporation / COSMOS TECHNICAL CENTER / Human Metabolome Technologies, Inc.
Electricity, gas, heat supply and water	3	RENOVA, Inc. / Shizen Energy Inc. / Loop Inc
Wholesale trade	3	Marubeni Corporation / MITSUI & CO., LTD.
Real estate agencies, leasers and managers	4	Country Garden Holdings Company Limited (China)
Insurance	2	AXA Life Insurance Co.,Ltd. / General Insurance Rating Organization of Japan
Others	11	ispace, inc. / UP INC. / Autonomous Control Systems Laboratory Ltd. / Tokyo Kagaku Dojin Publishing Company, Inc / PPD-SNBL K.K. / Paleo Labo co.,Ltd. / Gakujikai
	495	

<Source> Reference8 , 87th Conference of Postgraduate Working Group, Subdivision on Universities, Central Council for Education, MEXT (Aug 6, 2018).

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Dispatch of information

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The University of Tokyo



Academy for Global Leadership
Tokyo Institute of Technology



GPLLI
Global Program for Leadership of Leaders



GLAFS
Global Leadership Initiative
for an Age-Friendly Society



群馬大学
GUNMA UNIVERSITY



DGN
Disaster Nursing
Global Leader
Degree Program



Education Academy of Computational
Life Science



IGER
Innovation in Global
Education Research



FMS
Faculty of Management Science



DESIGN SCHOOL
KYOTO UNIVERSITY



Graduate education and
research training program in
DECISION SCIENCE
for a sustainable society
http://www.ics.kyushu-u.ac.jp

