



MEXT

MINISTRY OF EDUCATION,  
CULTURE, SPORTS,  
SCIENCE AND TECHNOLOGY-JAPAN



JSPS

# WISE Program

Doctoral Program for  
World-leading Innovative &  
Smart Education

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# Message



Chair, WISE Program Committee

**ARINOBU Mutsuhiro**

Japan is currently in the midst of numerous social changes, caused by issues such as structural labor shortages due to declining birthrates and an aging population, rapid shifts in domestic and international economic and social conditions amid global instability, and the accelerated advances in science and technology, such as generative AI and quantum computing. Moreover, on a global scale, there is an urgent need to address emerging challenges, such as climate change and infectious disease control. Amid these circumstances, the creation of innovations that transcend conventional ways of thinking is essential for sustaining people's hope for the future and ensuring the sustainable progress of society. The society of the future will be steered by *knowledge professionals* equipped with advanced expertise and specialized skills. Graduate schools, positioned at the pinnacle of higher education, are expected to cultivate *knowledge professionals* who will be capable of generating novel insights, expertise, and creating social values through pioneering innovations. However, there are ongoing concerns that Japanese talented students are shying away from matriculating doctoral courses for various reasons, including financial constraints, or not considering post-graduate education itself to be an attractive option. It must be acknowledged that graduate education in Japan faces challenges in terms of both quality and quantity.

With an aim to solving issues inherent within graduate-school education while fostering highly skilled *knowledge professionals* capable of leading societies of the future, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) launched the Doctoral Program for World-leading Innovative and Smart Education (WISE Program) in FY 2018. The young people fostered through the WISE Program are expected to lead the creation of new knowledge and its application, guide the next generation by creating new values, and tackle social issues to spark innovation. As for universities, the WISE Program encourages them to identify challenges within Japan's graduate education system and lead reform efforts. It expects each university to develop unique reform proposals that leverage their distinct characteristics and strengths, while calling for initiatives that harness their individual creativity and independent thinking.

Until FY 2020, the WISE Program received 140 applications from Japan's national, public, and private universities, and selected a total of 30 programs. In fiscal year 2024, the fifteen programs adopted in 2018, the inaugural year of the WISE Program, reached their final year and underwent post-project reviews. We expect each program team to build on their accumulated experience and make further progress based on the results of the publicly shared post-project reviews. Furthermore, we hope they will continue to apply their ingenuity and endeavors to expand the experiences and achievements they've gained through the initiatives to other universities across our country.

We believe that each university selected for the WISE Program should establish a system in which administrators and faculty, under the leadership of their presidents, take a proactive role in their program's implementation. Furthermore, they should continue exerting dedicated efforts to achieve comprehensive reform across their graduate schools. The WISE Program Committee conducts follow-up and periodic reviews of the universities' WISE Programs, providing support for the operation and self-sustainability of each program.

We have high expectations that the WISE Program will embody its objective of cultivating advanced *knowledge professionals* and that its outcomes will contribute to the nationwide reform of graduate education in Japan.

# WISE Program

Doctoral Program for World-leading Innovative & Smart Education

At its core, what propels the WISE Program is each university leveraging its unique strengths and capabilities. Building upon their heretofore accomplishments in campus reform, these universities carry out systematic collaborations with other universities, research institutions and corporations in and outside Japan. By establishing integrated master's-doctoral programs, which over a 5-year period endow their students with a melding of top world-class educational and research prowess, these universities cultivate the kind of outstanding PhD professional who can pilot forward various sectors of society. Concurrently, the program propels the establishment of excellent academic hubs capable of sustainably advancing human resource development and exchange and of generating new joint research initiatives.

## Purpose

Spearheading the generation and use of new knowledge, the WISE Program works to create the values that will bolster the next generation. Concomitantly, the program fosters the kind of high-level knowledge professionals who can enrich society with new genres of innovation while taking on the challenge of solving difficult societal issues.

## Backdrop

On one hand, Japan has increased the number of master's and PhD graduates via a quantitative expansion of its university graduate schools and has moved forward in improving the research environment of its universities and in increasing the number of research fields in which the country is globally competitive. On the other hand, Japan's international presence is wavering amidst the country's declining economic growth. Recent years have seen a situation that can be called "PhD flight," in which excellent young Japanese students are not going on to take doctoral courses. This foretells a future decline in the nation's intellectual creative capacity, which will weaken Japan's international competitiveness including its scientific and technological innovative prowess.

To sustain and grow the affluence currently enjoyed in Japan, the government is expected to take the lead in creating the new key industries of the future while staying abreast of the quickly advancing global industrial structure propelled by rapid changes in the world economies and societies. To that end, university graduate schools in Japan are expected to be a wellspring of the new knowledge and technologies needed to create new key industries while being an incubator of talented people attuned with the social values attending these innovations.

## Transition

In and after 2015, the government's Council on Investments for the Future and its Central Council for Education proposed the establishment of a top-notch graduate program that could provide cutting-edge education via universities collaborating with corporations, overseas institutions, and other entities in fields in which Japan excels, after which the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Japan Society for the Promotion of Science (JSPS) began to consider a concrete system design for that graduate program.

Then, in FY 2018, the "Doctoral Program for World-leading Innovative and Smart Education" (WISE Program) was launched. It is positioned as a component within the government's innovation strategy.

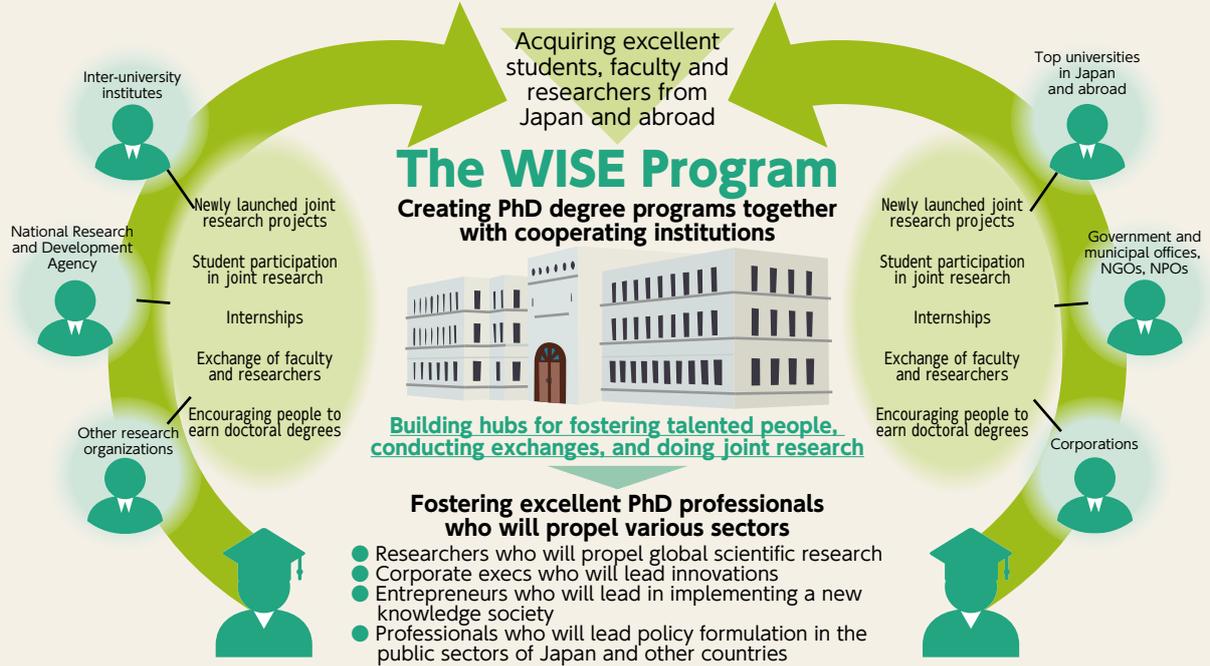
## Program Outline

Through the WISE Program, national, public and private universities with established graduate schools take the lead in generating and utilizing new knowledge while creating values that will drive forward the next generation. To foster high-level knowledge professionals, the program establishes a clearly defined profile of the kind of persons to be fostered and works to build and develop a degree program for them—one that maintains a consistent level of high quality across its master's and doctoral curricula.

In endeavoring to reform Japan's leading graduate schools, the WISE Program expects each university to create programs that amplify their own unique institutional character and strengths and to make program proposals that give expression to their own free ideas.

- Targets of support: National, public and private universities with established doctoral programs
- Period of program support: 7 years (At the 4-year mark, an overall program assessment is conducted in addition to an evaluation of each individual doctoral program. On and after the eighth year, a program extension is considered based on these evaluation results.)
- Amount of support: Up to ¥423 million
- Domains for proposal calls: For the purpose of fostering excellent PhD professionals, the following four recruitment domains are established.
  - (1) Research fields in which Japan has an international position of predominance or particular excellence
  - (2) Domains that fuse the sciences and humanities, that are interdisciplinary, or that are new and can create diverse values and systems within society
  - (3) Domains that are at the core of the industrial structure and that create new industries which contribute to economic development
  - (4) Domains in which Japan is expected to make contributions from a perspective of preserving academic diversity in the world
- Follow-up: Program officers (POs) are staffed within the WISE Program. They regularly examine and ascertain the state of progress of the selected programs and provide them with consultation and advice.

## Image of the Entire Program



## Q&A

### Q How can I enter the WISE Program?

**A** To enter the program, you will need to take a selection exam and carry out the entrance procedures. For details, please inquire directly to your preferred WISE program in the university.

Website links and contact information are contained in the "List of Programs." For information on coming to Japan to study, please use the following links:  
Study in Japan Comprehensive Guide: <http://www.studyjapan.go.jp/en/index.html>  
JASSO: <https://www.jasso.go.jp/en/index.html>

### Q If I belong to a university that has become a WISE cooperating institution, may I join the program?

**A** You cannot join the program just because you belong to a WISE cooperating institution. For details, please inquire directly to your preferred WISE program in the university.

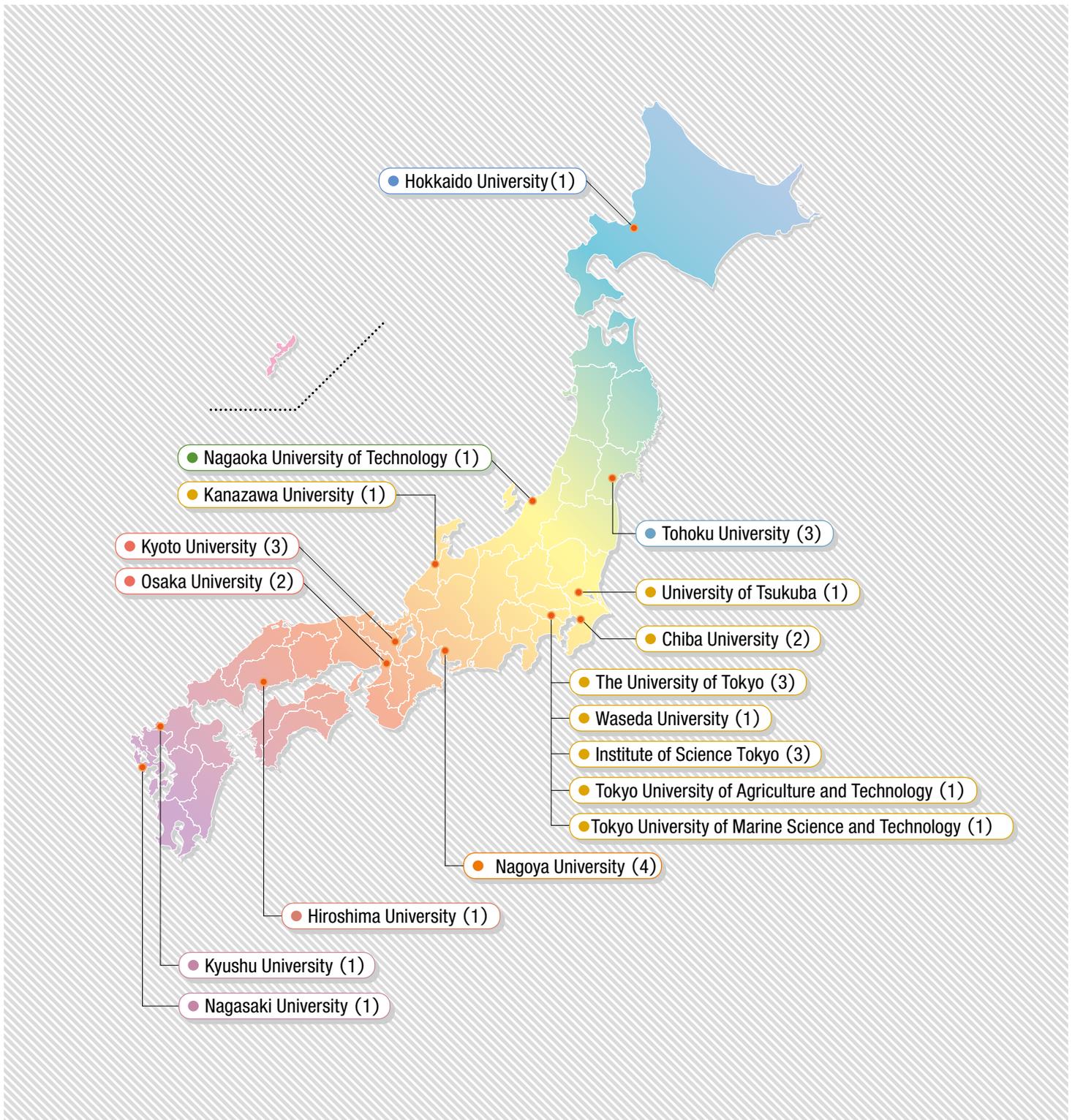
### Q What is studying like WISE doctoral programs?

**A** To enter a WISE program, you will need to have earned a bachelor's degree. In the program, you will study for a period of five years via an integrated master's and doctoral course curricula. As to course completion, a qualification exam is carried out based on the program's own standards.

### Q Can I receive a different degree from a WISE-affiliated graduate school? Is there a joint degree program?

**A** The WISE Program does not issue PhD degrees. They are issued by your affiliated research department. However, some universities have joint degree programs. For details, please inquire directly to your preferred WISE program in the university.

# List of Programs



## Applications and Selections

Fiscal Year	Number of Applications		Number of Selections	
	Number of Universities	Number of Programs	Number of Universities	Number of Programs
FY 2018	38	54	13	15
FY 2019	29	44	9	11
FY 2020	27	42	4	4

## List of Programs Selected in FY2018

No.	Names of Program	Names of Universities	Names of Program Coordinator	WISE cooperating institution	Page
1801	WISE Program for One Health Frontier Graduate School of Excellence	Hokkaido University	HORIUCHI Motohiro	Obihiro University of Agriculture and Veterinary Medicine Graduate School (National Research Center for Protozoan Diseases)/Rakuno Gakuen University Graduate School/Shionogi & CO., LTD./Fuso Pharmaceutical Industries, LTD./World Health Organization (WHO)/The World Organisation for Animal Health (WOAH)/Japan International Cooperation Agency (JICA)	12
1802	Advanced Graduate Program for Future Medicine and Health Care	Tohoku University	YAMAUCHI Masanori	South Miyagi Medical Center/ National Institutes of Health (USA)/ National University of Singapore/ Tropical medicine, Philippines/ Peking University/ Norwegian University of Science and Technology/ ONO PHARMACEUTICAL CO., LTD/ GC Corporation/ J. MORITA CORP./ Canon Medical Systems Corporation/ Philips Japan, Ltd./ SHIMADZU Corporation/ OMRON HEALTHCARE Co., Ltd./ Yakult Honsha Co., Ltd./ Kagome Co., Ltd./ TOPCON CORPORATION/ Kajima Corporation Technical Research Institute/ Allm Inc./ Olympus Corporation/ ClayTech, Inc.	14
1803	WISE Program for AI Electronics	Tohoku University	KANEKO Toshiro	TOSHIBA CORPORATION/CANON MEDICAL SYSTEMS CORPORATION/E&M Corporation/AISIN SOFTWARE Co., Ltd./ALPS ALPINE CO., LTD./TDK Corporation/ National Institute of Information and Communications Technology/National Institute of Advanced Industrial Science and Technology	16
1804	Ph.D. Program in Humanics	University of Tsukuba	YANAGISAWA Masashi	University of California, Irvine / University of Bordeaux / National Taiwan University / The University of Edinburgh / National Institute for Materials Science / National Institute of Advanced Industrial Science and Technology / TOYOTA MOTOR CORPORATION / Hitachi, Ltd. / Shimadzu Corporation / CYBERDYNE, Inc. / Astellas Pharma Inc. / S'UIMIN inc.	18
1805	World-leading Innovative Graduate Study Program for Life Science and Technology	The University of Tokyo	OKADA Yukinori	Astellas Pharma Inc./Olympus Corporation/CANON MEDICAL SYSTEMS CORPORATION/SHIONOGI & CO., LTD./Sysmex Corporation/Janssen Pharmaceutical K.K./DAIICHI SANKYO COMPANY, LIMITED/Takeda Pharmaceutical Company Limited/Utokyo Innovation Platform Co., Ltd.	20
1806	Excellent Leader Development for Super Smart Society by New Industry Creation and Diversity	Tokyo University of Agriculture and Technology	OHTSU Naoko	—	22
1807	Creating sustainable societies through [Material×Information] multi-talented human resource development	Institute of Science Tokyo (Tokyo Institute of Technology)	YAMAGUCHI Takeo	NIMS/AIST/AGC Inc./AKEBONO BRAKE INDUSTRY CO., LTD. /ASAHI KASEI CORPORATION/Dai Nippon Printing Co., Ltd./Hamamatsu Photonics K.K./Idemitsu Kosan Co., Ltd./JEOL Ltd./JFE Steel Corporation/Kurita Water Industries Ltd. / KYOCERA Corporation/Mitsubishi Chemical Corporation/MITSUBISHI GAS CHEMICAL COMPANY, INC./MITSUI KINZOKU COMPANY, LIMITED /NGK INSULATORS, LTD./NIPPON KAYAKU CO., LTD./Nippon Light Metal Company, Ltd./ Nissan Motor Co., Ltd. /Niterra Co., Ltd./Panasonic Industry Co., Ltd./Resonac Corporation/SCREEN Holdings Co., Ltd./SEIKO EPSON CORPORATION/SUMITOMO CHEMICAL Co., Ltd./Sumitomo Heavy Industries, Ltd. /TAIYO YUDEN CO., LTD./ TDK Corporation /TODA KOGYO CORP. /Toray Industries, Inc./Toshiba Corporation/TOSOH CORPORATION/Toyo Seikan Group Holdings,Ltd./Tsukishima Kikai Co., Ltd.	24
1808	Global Pro-Active Root Technology Program	Nagaoka University of Technology	YAMADA Noboru	Aalto University/Mondragon University/University of York/Bristol University/ University of Sheffield/University of Leeds/University of Deusto/Indian Institute of Technology Madras/University of Antwerp/University of Bordeaux/TH Köln-Technology.Arts.Sciences/Friedrich-Alexander Universität Erlangen-Nürnberg, FAU/Universität Bielefeld/Swiss Federal Laboratories for Materials Science and Technology/Sankyo Tateyama,Inc/Sumitomo Electric Industries, Ltd/Nagaoka Power Electronics Co., Ltd/Unipulse Corporation/Fuji Electric Co., Ltd/SANKI ENGINEERING CO., LTD/Japan Business Create Co.,Ltd/IBSystem Co., Ltd/Japan Fine Ceramics Association/Niigata Industrial Creation Organization/The Institute of Applied Energy/National Institute of Advanced Industrial Science and Technology/ Niigata City/Nagaoka City/Sado City/Shibata City	26

No.	Names of Program	Names of Universities	Names of Program Coordinator	WISE cooperating institution	Page
1809	Graduate Program of Transformative Chem-Bio Research	Nagoya University	KINOSHITA Toshinori	Institute for Molecular Science, National Institutes of Natural Science/National Institute for Basic Biology, National Institutes of Natural Science/the Graduate University for Advanced Studies/Institute of Physical and Chemical Research/Kaneka Co./Konica Minolta, Inc./ITBM-GTR consortium	28
1810	DII (Deployer-Innovator-Investigator) Collaborative Graduate Program for Accelerating Innovation in Future Electronics	Nagoya University	AMANO Hiroshi	Innovation for High Performance Micro-electronics/Interuniversity Microelectronics Center/Office ATOQS/Japan Aerospace Exploration Agency/National Institute for Materials Science/National Institute of Advanced Industrial Science and Technology / KAPION Inc./DENSO CORPORATION/TOSHIBA CORPORATION/TOYOTA CENTRAL R&D LABS., INC./Hitachi, Ltd. Central Research Laboratory/FUJITSU LABORATORIES LTD./Miraiproject Corporation/Sumitomo Electric Industries, Ltd./National University of Singapore/Tokyo Electron Ltd./TOYODA GOSEI CO., LTD./Nissan Motor Co., Ltd./Furukawa Electric Co., Ltd./Mitsubishi Electric Corporation/Nanjing University/Japan Venture Capital Association/NC State University/Forschungszentrum Jülich/MIRISE Technologies Corporation	30
1811	Innovation of Advanced Photonic and Electronic Devices	Kyoto University	KIMOTO Tsunenobu	University of Cambridge / Humboldt University of Berlin / ETH Zurich / Dresden University of Technology / Nanjing University / Sungkyunkwan University / National Institute for Materials Science / National Institutes for Quantum and Radiological Science and Technology / Central Research Institute of Electric Power Industry / National Institute of Advanced Industrial Science and Technology / Nidec Corporation / Mitsubishi Electric Corporation / Shimadzu Corporation / Sumitomo Electric Industries, Ltd.	32
1812	Transdisciplinary Program for Biomedical Entrepreneurship and Innovation	The University of Osaka	MORII Eiichi	Pfizer Inc./ Novartis Pharma K.K./ Johnson & Johnson Innovation/ Eli Lilly Japan K.K./ Chugai Pharmaceutical Co., Ltd./ Otsuka Pharmaceutical Co., Ltd./ Shionogi & Co., Ltd./ Daiichi Sankyo Company, Limited/ Mitsubishi Tanabe Pharma Corporation/ SYSMEX CORPORATION/ Takara Bio Inc./ Quantum Operation, Inc./ Cytiva/ EY Strategy and Consulting Co., Ltd./ Pharmaceuticals and Medical Devices Agency/ National Institute of Health Sciences/ National Institutes of Biomedical Innovation, Health and Nutrition	34
1813	The Frontier Development Program for Genome Editing	Hiroshima University	YAMAMOTO Takashi	Center for iPS Cell Research and Application, Kyoto University/ Graduate School of Technology, Industrial and Social Sciences, Tokushima University/ Department of Molecular and Cellular Biology, Harvard University/ Technical Research Center, Mazda Motor Corporation	36
1814	Global Health Elite Programme for Building a Healthier World	Nagasaki University	Madaniyazi Lina	London School of Hygiene and Tropical Medicine / Hokkaido University Research Center for Zoonosis Control / National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine / School of International Health, Graduate School of Medicine, The University of Tokyo / National Center for Global Health and Medicine / JICA / National Institute of Infectious Diseases / Sysmex Corporation	38
1815	Graduate Program for Power Energy Professionals	Waseda University	HAYASHI Yasuhiro	Hokkaido University/Tohoku University/University of Fukui/University of Yamanashi/Tokyo Metropolitan University/Yokohama National University/Nagoya University/Osaka University/Hiroshima University/Tokushima University/Kyushu University/University of the Ryukyus/The University of Tennessee, Knoxville / University of Chicago/University of Washington/Tsinghua University/Chulalongkorn University/Technical University of Munich/Korea University/ENEOS Corporation/Tokyo Gas Co., Ltd./Central Research Institute of Electric Power Industry/National Institute of Advanced Industrial Science and Technology/Power Academy	40

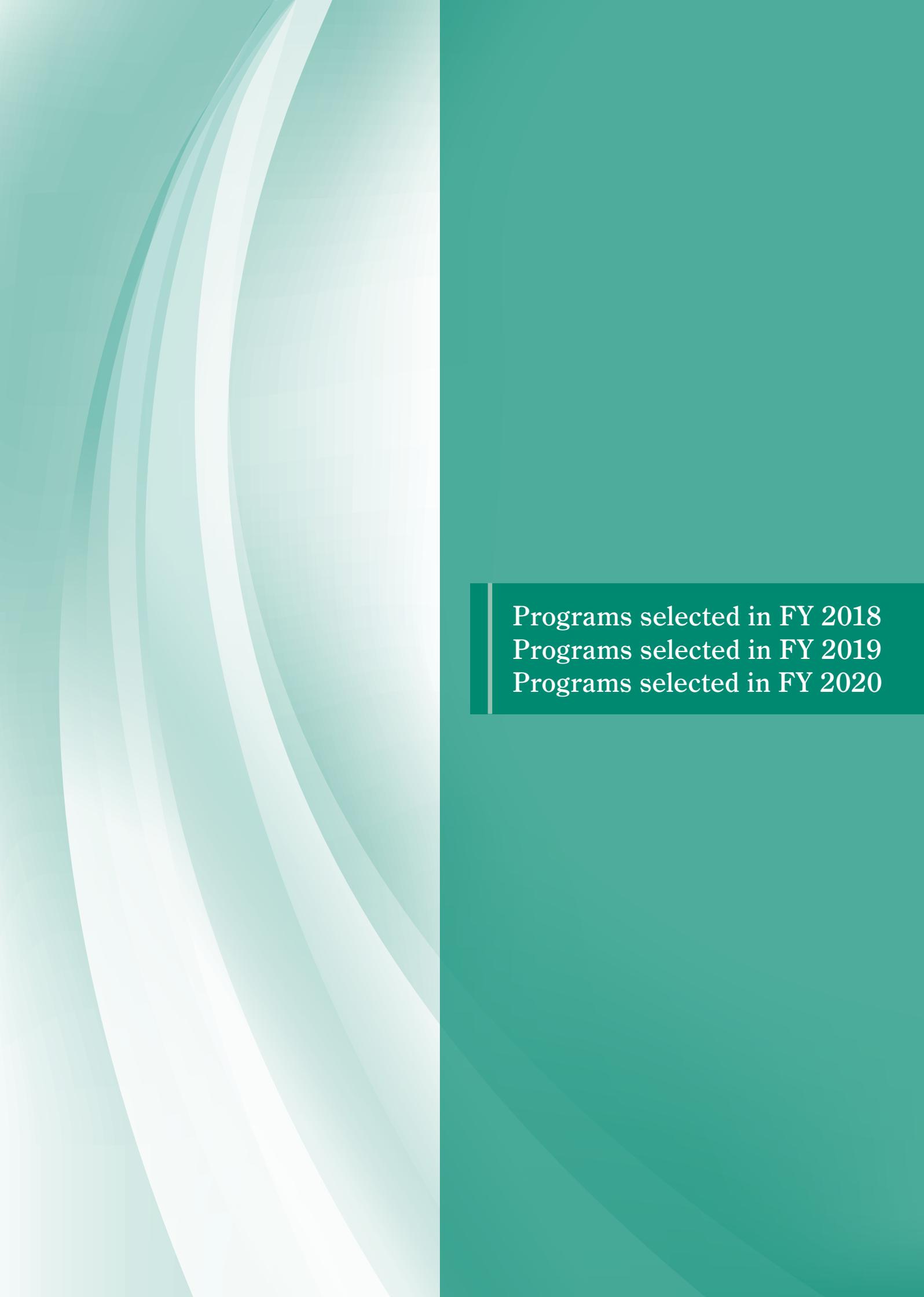
## List of Programs Selected in FY2019

No.	Names of Program	Names of Universities	Names of Program Coordinator	WISE cooperating institution	Page
1901	WISE program for Sustainability in the Dynamic Earth	Tohoku University	NAKAMURA Michihiko	Stanford University/ Harvard University/ University of Washington/ University College of London/ University of Indonesia/ Sorbonne University/ University of Hawaii at Manoa/ Japan International Cooperation Agency/ Tokio Marine & Nichido Fire Insurance Co., Ltd/ Nippon Koei Co., Ltd/ Penta-Ocean Construction Co., Ltd/ Japan Organization for Metals and Energy Security/ Sumitomo Metal Mining Co., Ltd./ National Institute of Advanced Industrial Science and Technology/ National Research Institute for Earth Science and Disaster Resilience/ HAZAMA ANDO CORPORATION/ INPEX CORPORATION/ Okumura Corporation/ OYO Corporation/ Geothermal Engineering Co., Ltd./ FUKKEN CO., LTD/ KAJIMA CORPORATION	42
1902	Applied Humanities Program for Cultivating Global Leaders	Chiba University	YONEMURA Chiyo	Okayama University/Nagasaki University/Kumamoto University/The Graduate University for Advanced Studies/Zhejiang Gongshang University/Institute for Oriental and Classical Studies, National Research University "Higher School of Economics"(russian)/National Museum of Japanese History/Aeon Environmental Foundation/AEON CO.,LTD/JTB Tourism Research & Consulting Co./Chiba Bank/ Keiyo Bank/The Japan Research Institute, Limited/NLI Research Institute	44
1903	Innovative Medicine CHIBA Doctoral WISE Program	Chiba University	SAITO Tetsuichiro	University of California San Diego/University of Southern California/Charité – Universitätsmedizin/University of Toronto/Institute of Physical and Chemical Research/National Institute of Advanced Industrial Science and Technology/ National Institute for Quantum Science and Technology/Takeda Pharmaceutical Company Limited/Microsoft Japan Co., Ltd/Sysmex Corporation/Eli Lilly Japan K.K./Olympus Corporation/DNA Chip Research Inc./H.U. Group Research Institute G.K./Genefrontier	46
1904	Forefront Physics and Mathematics Program to Drive Transformation	The University of Tokyo	MURAYAMA Hitoshi	Nippon Steel Corp./NTT Corp./Macromill, Inc./École Polytechnique/California Institute of Technology/UC Berkeley/Korea Institute for Advanced Study/National Taiwan University/ETH Zurich/Tsinghua University/Seoul National University/ Harvard University/Princeton University/Peking University/ENS de Lyon/CERN/ Mathematical Sciences Research Institute/IHES/Paul Scherrer Institute	48
1905	World-leading Innovative Graduate Study: Advanced Business Law Program	The University of Tokyo	TAMURA Yoshiyuki	Harvard Law School/ Peking University/ Seoul National University/ National Taiwan University/ University of Strasbourg/ Hitachi, Ltd./ FUJIFILM Corp./ SoftBank Corp./ LY Corporation/ Nippon Life Insurance Co./ Intellectual Property Department, Takeda Pharmaceutical Co., Ltd. / Google Japan G.K./ Thomson Reuters KK/ East Japan Railway Company/ Anderson Mori & Tomotsune/ TMI Associates/ Zelo/ SUGIMURA & Partners/ Institute for Monetary and Economic Studies, Bank of Japan	50
1906	Engineering Education Program for Super Smart Society based on Advanced Quantum Science	Institute of Science Tokyo (Tokyo Institute of Technology)	SAKAGUCHI Kei	National Agriculture and Food Research Organization/ National Institutes for Quantum and Radiological Science and Technology/ RIKEN Center for Advanced Intelligence Project/ Japan Agency for Marine-Earth Science and Technology/ NICT Wireless Networks Research Center/ AIST Information Technology and Human Factors/ Kawasaki City/ Ota City/ Ministry of Agriculture, Forestry and Fisheries/ Ocean Policy Research Institute/ JTEKT Corporation/ NEC Corporation/ NSK Ltd./ Yaskawa Electric Corporation/ Azbil Corporation/ Yokogawa Electric Corporation/ Kodan Electronics Co., Ltd./ KDDI Corporation/ SoftBank Corp./ Huawei Japan/ DENSO Corporation/ LG Japan/ Kawasaki Heavy Industries, Ltd./ Kubota/ Komatsu Ltd./ Mitsubishi Electric/ Central Japan Railway Company/ Rakuten Mobile/ Matsuda/ Google LLC/ CEA Leti/ Georgia Institute of Technology/ National Taiwan University of Science and Technology/ University of Twente/ University of Rome Tor Vergata/ The Ohio State University/ Thammasat University Thailand/ University of Glasgow/ Technical University of Munich/ Fraunhofer Heinrich-Hertz-Institute /University of Sydney/ Institute for Infocomm Research/ Cornell University/ Yonsei University/ RWTH Aachen University/ Airgain Inc./ Japanese Chamber of Commerce & Industry of NY/ University of California/ Irvine/ University of Melbourne/ National Tsing Hua University/ The Pennsylvania State University/ Bandung Institute of Technology	52

No.	Names of Program	Names of Universities	Names of Program Coordinator	WISE cooperating institution	Page
1907	Development of WISE (World-leading Innovative & Smart Education) Program to foster AI (Artificial Intelligence) Professionals for Marine Industries	Tokyo University of Marine Science and Technology	MAITA Masashi	Japan Agency for Marine-Earth Science and Technology / Japan Fisheries Research and Education Agency / National Institute of Maritime, Port and Aviation Technology / Technical University of Denmark / IDEA Consultants,inc. / BEMAC Corporation / Innoqua inc. / Nissui Corporation /Maruha Nichiro Corporation / FURUNO ELECTRIC CO.,LTD. / Japan Radio Co.,Ltd. / MTI Co., Ltd. / ZABooN Inc. / TSUNEISHI AKISHIMA LABORATORY Co., Ltd. /SANYO TECHNO MARINE/MizLinx Inc./Ocean Policy Research Institute of Sasakawa Peace Foundation / Japan Weather Association / NPO Marine Technologist	54
1908	WISE Program for Nano-Precision Medicine, Science and Technology	Kanazawa University	HANAYAMA Rikinari	Imperial College London / University of British Columbia / Nikon Solutions Co., Ltd. / Pfizer R&D Japan G.K. / Ricoh Co., Ltd. / FUJIFILM Wako Pure Chemical Corporation / Olympus Corporation / Daicel Corporation / Hamamatsu Photonics K.K. / Shibuya Corporation / Carepro, Inc. / Kopernik Japan/ Nissan Chemical Corporation / Novartis Japan / Ishikawa Prefectural Police Scientific Reserch Institute / ACTREE Corporation	56
1909	Convolution of Informatics and Biomedical Sciences On Glocal Alliances	Nagoya University	KATSUNO Masahisa	Gifu University/National Institute for Physiological Sciences/Aichi Cancer Center/ National Center for Geriatrics and Gerontology/Aichi Developmental Disability Center Institute for Developmental Research/Institute of Statistical Mathematics/ University of Adelaide/Lund University/Albert-Ludwigs-Universität Freiburg/ University of Nottingham/The Chinese University of Hong Kong/University of Bologna/LMU Munchen/Korea University/Monash University/Shimadzu Corporation/Novartis Pharma/NVIDIA Corporation/Eisai Co., Ltd./Olympus Corporation/RaQualia Pharma/Sumitomo Pharma Co., Ltd./Mitsubishi Tanabe Pharma Corporation/Takeda Pharmaceutical Co., Ltd./CBmed/Hitachi Co., Ltd./ Astellas Pharma Inc	58
1910	Graduate Program for Medical Innovation	Kyoto University	WATANABE Dai	University of California, San Diego/University of Toronto/National Taiwan University/The FIRC Institute of Molecular Oncology/National Institutes of Health/Max-Planck Institute/NeuroSpin/RIKEN/Institute of Biomedical Research and Innovation, Foundation for Biomedical Research and Innovation at Kobe/ Tazuke Kofukai Medical Research Institute Kitano Hospital/Bioorganic Research Institute, Suntory Foundation for Life Sciences/NTT DATA Corporation/Deloitte Tohmatsu Consulting LLC./mixi, Inc./KBBM, Inc./MICIN, Inc./Eisai Co., Ltd./ Daiichi Sankyo Co., Ltd./ Chugai Pharmaceutical Co., Ltd./ Asahi Kasei Pharma Corporation/Sumitomo Dainippon Pharma Co., Ltd./ONO PHARMACEUTICAL CO., LTD./Mitsubishi Tanabe Pharma Corporation/KYORIN Pharmaceutical Co.,Ltd./ Chordia Therapeutics, Inc.	60
1911	Multidisciplinary PhD Program for Pioneering Quantum Beam Application	The University of Osaka	NAKANO Takashi	High Energy Accelerator Research Organization Institute of Materials Structure Science/High Energy Accelerator Research Organization Institute of Particles and Nuclear Studies/National Institutes for Quantum and Radiological Science and Technology/Research Center for Accelerator and Radioisotope Science, Tohoku University/J-PARC/Kyoto Institute of Technology/Graduate School of Informatics, Kyoto University/Isotope Science Center, The University of Tokyo/Kavli Institute for the Physics and Mathematics of the Universe, The University of Tokyo/RIKEN/TRIUMF/The University of Queensland/Heidelberg University Hospital/Heinrich Heine University Dusseldorf/National Institute of Health Science/ATOX/Telix Pharmaceuticals Japan/SOCIONEXT/Hitachi, Ltd./Nihon Medi-Physics Co, Ltd./ Sumitomo Heavy Industries, Ltd./FUJIFILM Toyama Chemicals Co., Ltd./Kyoto Medical Technology/EPS Corporation/Metal Technology Co. Ltd./Toshiba Electronic Devices & Storage Corporation/Japan Radioisotope Association/ Anderson Mōri & Tomotsune/Alpha Fusion Inc./ Japan Post Insurance Co.Ltd.	62

## List of Programs Selected in FY2020

No.	Names of Program	Names of Universities	Names of Program Coordinator	WISE cooperating institution	Page
2001	Multi-Scope・Energy WISE Professionals	Institute of Science Tokyo (Tokyo Institute of Technology)	IHARA Manabu	IHI Corporation/Azbil Corporation/IMRA JAPAN CO., LTD./Iwatani Corporation/ENEOS Corporation/NTT DATA CUSTOMER SERVICE Corporation/NTT DATA BUSINESS SYSTEMS CORPORATION/KAJIMA CORPORATION/Kawasaki Heavy Industries, Ltd./JFE Engineering Corporation/Mitsui O.S.K. Lines, Ltd./SUMITOMO CORPORATION/Chiyoda Corporation/Deloitte Touche Tohmatsu Limited./Tokyo Electric Power Company Holdings, Incorporated/TOSHIBA CORPORATION・Toshiba Energy Systems & Solutions Corporation/Tokuyama Corporation/TOYO KANETSU K.K./BROTHER INDUSTRIES, LTD./Resonac Corporation/Mizuho Research & Technologies, Ltd./Mitsui Chemicals Inc./Mitsubishi Electric Corporation/Japan International Cooperation Agency(JICA)/CEA-Liten(France)/National Institute of Advanced Industrial Science and Technology(AIST)/Thailand National Science and Technology Development Agency(Thailand)/Kawasaki Ciry/HITOTSUBASHI UNIVERSITY(Japan)/Georgia Institute of Technology(USA)/Imperial College London(UK)/INSA de Lyon(France)/Korea Advanced Institute of Science and Technology(Korea)/Massachusetts Institute of Technology(USA)/Nanyang Technological University(Singapore)/Princeton University(USA)/RWTH Aachen University(Germany)/Tsinghua University(China)/University of California, Davis(USA)/University of California, Santa Barbara(USA)/University of Cambridge, Judge Business School(UK)/University of Stuttgart(Germany)/Uppsala University(Sweden)/The University of Sydney(Australia)	64
2002	Graduate Program for Lifestyle Revolution based on Transdisciplinary Mobility Innovation	Nagoya University	KAWAGUCHI Nobuo	Gifu University/University of Michigan (USA)/Virginia Institute of Technology (USA)/The Ohio State University (USA)/Chalmers Institute of Technology (Sweden)/National University of Singapore (Singapore)/Chulalongkorn University (Thailand)/Hanoi University of Science and Technology (Vietnam)/WHILL Inc./MTG Ventures/ElringKlinger Marusan Corporation/KYOCERA Mirai Envision Co.,Ltd./KDDI Research, Inc./Cisco Systems/OIBooster, Inc./Sohgo Security Services Co., Ltd./Sompo Japan Insurance Inc./Central Japan International Airport Co., Ltd./Tier IV, Inc./Denso Corporation/Toenec Corporation/TOYOTA SYSTEMS CORPORATION/Toyota Motor Corporation/Toyota Technical Development Corporation/Trusco Nakayama Corporation/Nagoya Railroad Co.,Ltd./Fujitsu Ltd./Sumitomo Mitsui Banking Corporation/LY Corporation/Yamaha Motor Co., Ltd.	66
2003	Distinguished Doctoral Program of Platforms	Kyoto University	HARADA Hiroshi	Jichi Medical University/The Institute of Statistical Mathematics/Toyota Motor Corporation/NTT Communication Science Laboratories/Meteorological Engineering Center/Agricultural and Rural Development Information Center/The Research Institute for Humanity and Nature/Mitsubishi UFJ Research and Consulting/RIKEN/LINE Yahoo Research/System Platform Research Laboratories/Advanced Telecommunications Research Institute International/Nippon Telegraph and Telephone West Corporation/KDDI Research, Inc./KADOKAWA ASCII Research Laboratories, Inc./Ruby Association/Anritsu Corporation/Institute for Health Economics and Policy/National Institute of Information and Communications Technology/National Fisheries University/Japan Agency for Marine-Earth Science and Technology/The National Agriculture and Food Research Organization/Mitsubishi Electric Corporation Information Technology R&D Center/Sony Group R&D Center/Deloitte Tohmatsu Cyber LLC/University of Chicago/University of Illinois/Vienna University of Technology/University of Potsdam/Delft University of Technology/Technical University of Berlin/Aalborg University/Huazhong Agricultural University/National Chung Hsing University/National Taiwan University/University of Florida/Technical University of Munich/Sorbonne University/The French National Centre for Scientific Research/Institute for Infocomm Research, Agency for Science, Technology and Research (A*STAR)	68
2004	Graduate Program of Mathematics for Innovation	Kyushu University	SAEKI Osamu	Department of Mathematics, University of Illinois at Urbana-Champaign (US) / Department of Mathematics, University of California, San Diego (US) / Department of Mathematics and Statistics, La Trobe University (Australia) / Department of Mathematics, National University of Singapore (Singapore) / Department of Mathematics, Ajou University (Korea) / Department of Mathematics, National Taiwan Normal University (Taiwan) / Politecnico di Torino (Italy) / Zuse Institute Berlin (Germany) / Mathematical Institute, Leiden University (Netherlands) / Faculty of Engineering, Lund University (Sweden) / The Institute of Statistical Mathematics / RIKEN (Center for Advanced Intelligence Project / Center for Interdisciplinary Theoretical and Mathematical Sciences)/ The National Institute of Advanced Industrial Science and Technology / Fujitsu Limited / Mazda Motor Corporation / Sumitomo Electric Industries, Ltd. /NTT, Inc / Itoshima City (Planning Department, Regional Promotion Division)/	70



Programs selected in FY 2018  
Programs selected in FY 2019  
Programs selected in FY 2020

## WISE Program for One Health Frontier Graduate School of Excellence



北海道大学  
One Health フロンティア  
卓越大学院プログラム

**[Program Coordinator]** HORIUCHI Motohiro Director, the One Health Reserch Center / Professor, Faculty of Veterinary Medicine, Graduate School of Infectious Diseases, Hokkaido University

**[Fields of diplomas]** Ph.D. (Infectious Diseases), Ph.D. (Veterinary Medicine)

Name of the program to be noted: One Health Frontier Graduate School of Excellence

**[URL]** <https://onehealth.vetmed.hokudai.ac.jp/en/>



### Message from the President



**HOUKIN Kiyohiro**  
President of Hokkaido University

### Foster professionals in the field of One Health for addressing public health issues at the human-animal interface.

In this program, multisectoral activities with universities, private companies and international organizations are involved. It ensures practical and quality education for the program participants. Although we have experienced a tough time during the global pandemic, it let us reacknowledge the importance of One Health approaches where people from various fields work together. Gaining advanced knowledge on One Health, participants are expected to contribute to solving One Health issues as true experts. We are also promoting the WISE program as good practice in Hokkaido University for further innovation in graduate school education.

#### Message from WISE Cooperating Institution

##### One Health to address global challenges



**Dr Pondpan SUWANTHADA**  
Regional AMR Project Officer,  
World Organisation for  
Animal Health Regional  
Representation for Asia and  
the Pacific (RRAP)

Global challenges such as antimicrobial resistance (AMR) require strong multisectoral collaboration. As a graduate of the WISE Program at Hokkaido University, the knowledge and experience I gained have equipped me to contribute to addressing global health issues. The program taught me the importance of working across sectors. Now at WOAHA, I'm a part of the One Health team, supporting countries/territories to strengthen international cooperation and collective action to address global health issues, and I hope to further collaboration and support with the WISE program.

#### Voices of Graduates

##### What I Gained from the WISE Program



**ERDENEBAT Temuulen**  
Postdoctoral Fellow, Graduate  
School of Infectious Diseases,  
Hokkaido University

Through this program, I gained valuable experiences through domestic training, fieldwork in Mongolia, an internship in the United States, and participation in international conferences. On-campus report sessions, seminars, and symposiums deepened my understanding of the One Health concept. I also learned much from participants with diverse academic and professional backgrounds. These experiences will greatly benefit my current research and help strengthen zoonotic disease control and promote the One Health approach in my country.

### Good Practice



#### The international symposium "SaSSOH" aims to foster independence, communication skills, and planning ability.

In this program, the international symposium "SaSSOH" is held annually, planned and organized by students and young faculty members, with the aim of fostering students' independence, communication skills, and planning ability. This symposium provides students with opportunities to interact with leading overseas experts in the field of One Health, gain cutting-edge knowledge, and develop the skills needed to play active roles on the global stage. In addition, workshop-style programs are conducted to help cultivate professionals who can demonstrate leadership in the field when facing zoonotic or chemical hazards.

### D A T A

**[Number of students recruited (For FY2026, number of students to be recruited)]**

20 (FY2019), 19 (FY2020), 22(FY2021), 27(FY2022), 31(FY2023), 28(FY2024), 43(FY2025), 20(FY2026)

**[Number of people engaged in the program]** 52

**[Students' affiliated schools and departments]**

2graduate schools, 2departments

<Graduate School of Infectious Diseases>Infectious Diseases

<Graduate School of Veterinary Medicine>Veterinary Medicine

**[WISE Cooperating Institutions]**

2universities, 2companies, 3international organizations

Obihiro University of Agriculture and Veterinary Medicine

Graduate School (National Research Center for Protozoan Diseases)/Rakuno Gakuen University Graduate School/ Shionogi & CO., LTD./Fuso Pharmaceutical Industries, LTD./ World Health Organization (WHO)/The World Organisation for Animal Health (WOAH)/Japan International Cooperation Agency (JICA)

**[Number of program graduates (including anticipated graduates)]** 1(FY2021), 15(FY2022), 9(FY2023), 16(FY2024), 34(FY2025)

**[Career paths after graduation (including anticipated paths)]** 24 to universities, 8 to private enterprise, 3 to public research institute, 3 to medical practitioner

As of November 2025

## Aim for One Health

Zoonosis and emerging and re-emerging infectious diseases, such as influenza, Ebola hemorrhagic fever, tuberculosis, and antimicrobial-resistant bacterial infections appear one after another and threaten public health. In the past 30 years, more than 30 new pathogens have emerged and a million people die each year from mosquito- and tick-borne infections. Transboundary animal infectious diseases, such as foot-and-mouth disease and classical swine fever, cause severe economic damage once they enter.

Hazards chemicals discharged into environment that include poisonous metals, pollutants such as dioxin, and persistent organic pollutants, are known to have caused global-scale contamination and threaten the health of humans and animals. Environmental pollution, rather than disease, is the leading cause of death in developing countries, with one-sixth people estimated to die.

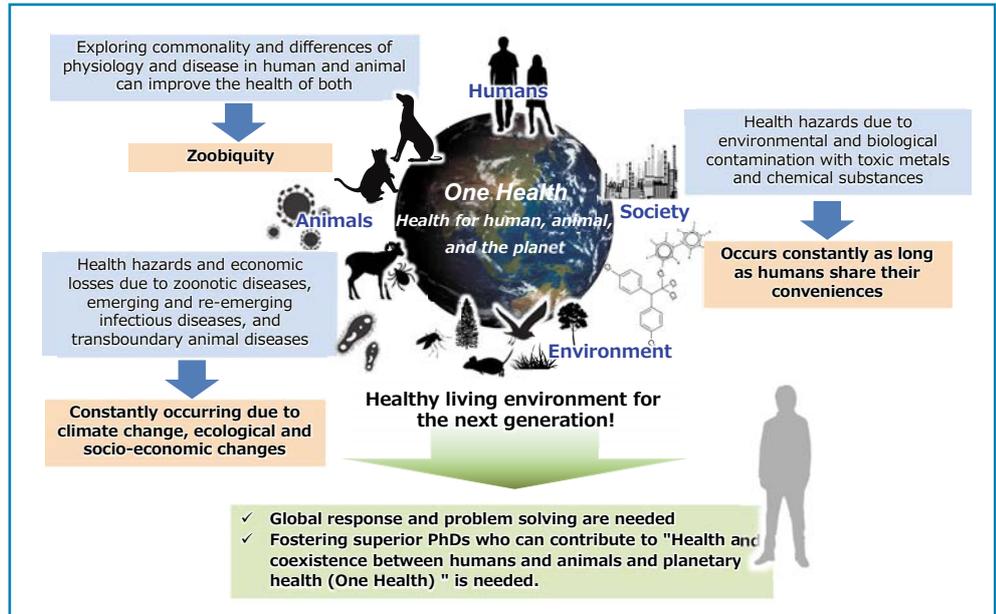
There are many diseases such as cancer, urological and neurological disorders, which are commonly observed in humans and animals, other than infectious diseases. Based on the concept that researches on physiological difference and similarity of diseases greatly contributes to both human and animal health, "Zoobiquity", which proposes the reinforcement of collaboration between medicine and veterinary medicine, is recently drawing international attention.

Health and socio-economic problems by infectious diseases and hazardous chemicals are continuously occurring. Contemporary humans, who have been receiving lives of convenience, are obliged to pass soundness and integrity of living environments on to the next generations. Zoobiquity also aims to further improve the health of people and animals.

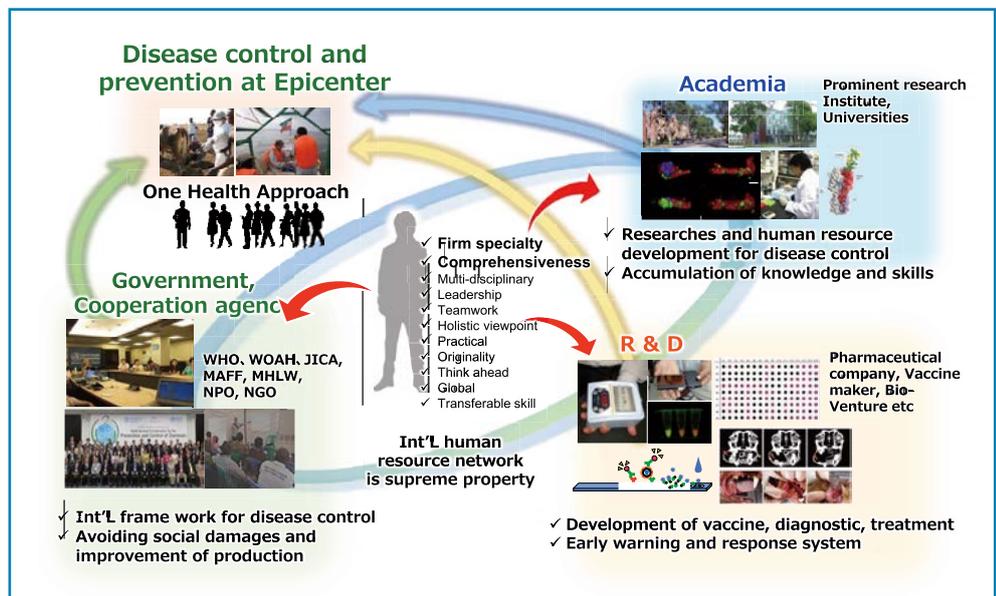
"Health and coexistence between humans and animals and planetary health" is the critical concept of this program "One Health" with the aim of fostering experts who can contribute to its achievement.

## The Human Resources Network fostered by PhDs is a supreme property of world society.

To ensure "One Health", multi-disciplinary collaboration such as medicine, veterinary medicine, and environmental science, and trans-sectoral cooperation with human and animal health sectors, education, research and development institutions, and risk management authorities, in other words, "One Health Approach", is essential. In this program, we promote advanced researches using excellent research and human



The human resources that we aim to foster is superior PhDs who will be able to contribute to the achievement of "One Health" to pass soundness and integrity of living environments to the next generations.



The abilities of PhDs fostered by this program, a wide range of fields in which they play active roles, and social contributions.

resources and outstanding experiences on infectious diseases, chemical hazard, and animal and life sciences for contributing One Health. Additionally, PhDs will gain a variety of experiences of international collaborative research with reliable counterparts, cooperative activity with international organization such as WHO, WOAH, and JICA, and/or development research in collaboration with public institution and company. This program aims at fostering superior PhD who will be able to tackle and resolve problems related to One Health, with a definite idea for disease control and prevention, a holistic viewpoint, a well-balanced international sense, and a comprehensive competence for decision-making and problem-solving. They show their great expertise in the field of administrative and international cooperation to

help to prevent disease spread. In the R&D fields, they contribute to innovations essential for disease prevention, such as the development of new vaccines, diagnostic and treatment methods, and early detection systems of anomalies. They also play a key role in fostering human resources and the accumulation of scientific knowledge in universities and institutes, through education to help prevent and overcome diseases as well as basic and applied research to bring about novel innovations. The network fostered by PhDs who share the philosophy of One Health is a supreme property in a global society. With them, this program, and related organizations with the shared aim of One Health, we hope to accelerate the creation of One Health, a social benefit that should be shared by human society.

## Advanced Graduate Program for Future Medicine and Health Care



**[Program Coordinator]** YAMAUCHI Masanori (Professor, Graduate School of Medicine, Tohoku University)  
**[Fields of diplomas]** Doctor of Philosophy (Medical Sciences)/(Disability Sciences)/(Nursing)/(Health Sciences)/(Dental Science)/(Pharmacy)/(Pharmaceutical Sciences)/(Life Sciences)/(Information Sciences)/(Economics)/(Management)/(Letters)/(Education)/(Biomedical Engineering), Doctor of Philosophy  
**[URL]** <https://www.fmhc.tohoku.ac.jp/>



### Message from the President



**TOMINAGA Teiji**  
President, Tohoku University

### Fostering leaders who will drive future medicine and health care, based on co-creation with society, developing HR to lead the transformation of future society

Tohoku University has been accredited as Japan's first university for International Research Excellence. In line with this recognition, we are advancing reforms in our graduate education to meet the standards of a world-class research university. In 2027, the functions of Advanced Graduate School will be further enhanced to strengthen centralized management, expand diverse and appealing graduate programs.

To better respond to social needs and academic advancements, we will foster brilliant researchers and entrepreneurs who will lead international initiatives, including in the industrial sector, by transforming conventional education into cross-disciplinary programs.

This program is deeply connected to our "Core Research Cluster" in "Future Medicine and Health Care," and plays a significant role in strengthening the university's strategic research capabilities. We will continue fostering highly specialized professionals who will lead future medicine and healthcare across diverse sectors.

### Message from WISE Cooperating Institution

#### Creating Comfortable and Fulfilling Construction Worksites



**SUDA Kumiko**  
Senior Manager, Kajima Corporation/  
Chairperson, Construction Industry  
Women's Retention Support  
Network

We are advancing public-private collaborative initiatives to realize a construction industry where everyone can work comfortably and find fulfillment in their work.

By focusing on women working in the construction industry and sharing concrete measures, we are fostering talent capable of leading flexible site management and environmental improvements.

We hope that initiatives within the construction industry will contribute to creating multifaceted perspectives for the societal implementation of research outcomes.

### Voices of Graduates

#### An advanced discussion among fellows mastering diverse expertise.



**KUBOTA Takahiro**  
Assistant Manager, Healthcare  
Division, NTT DATA Japan

In this program, active interaction among participants is encouraged. By exchanging ideas with students from diverse backgrounds—including engineering, history, and philosophy beyond medical sciences—I have gained a deeper understanding of the real world. Many aim to launch ventures to apply their research to society, and these discussions have offered many eye-opening insights. In my work conducting national social experiments at a private company, I have found this experience highly beneficial to my professional growth.

### Good Practice



#### Turning high school students into future scientists at our open campus!

Approximately 58,000 high school students, family members, and career guidance counselors attended Tohoku University's Open Campus over two days. Our program featured exhibits designed to help attendees envision their future, such as posters showcasing research achievements and graduate school life. A total of 512 high school students and family members visited our booth. It was a valuable opportunity for both high school students and program students to discuss real university life and career paths leveraging research. Discussions focused on society with diverse participants were lively, and we feel our regular training is paying off.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

15 each (FY2018-FY2026)

**[Number of people engaged in the program]** 84

**[Students' affiliated schools and departments]**

9 graduate schools, 20 departments

<Graduate School of Medicine> Medical Sciences, Disability Sciences, Health Sciences, Public Health

<Graduate School of Dentistry> Dental Sciences

<Graduate School of Pharmaceutical Sciences> Molecular Pharmaceutical

Science, Life and Pharmaceutical Science, Pharmacy

<Graduate School of Life Sciences> Integrative Life Sciences, Ecological

Developmental Adaptability Life Sciences, Molecular and Chemical Life Sciences

<Graduate School of Information Sciences> Applied Information Sciences,

Computer and Mathematical Sciences, Human-Social Information Sciences

<Graduate School of Economics and Management> Economics and Management

<Graduate School of Arts and Letters> Japanese Studies, Global Humanities,

Integrated Human Sciences

<Graduate School of Education> Educational Sciences

<Graduate School of Biomedical Engineering> Biomedical Engineering

**[WISE Cooperating Institutions]**

5 universities, 14 companies, 1 local public body

South Miyagi Medical Center/ National Institutes of Health (USA)/ National

University of Singapore/ Tropical medicine, Philippines/ Peking University/

Norwegian University of Science and Technology/ ONO PHARMACEUTICAL

CO., LTD/ GC Corporation/ J. MORITA CORP./ Canon Medical Systems

Corporation/ Philips Japan, Ltd./ SHIMADZU Corporation/ OMRON

HEALTHCARE Co., Ltd./ Yakult Honsha Co., Ltd./ Kagome Co., Ltd./ TOPCON

CORPORATION/ Kajima Corporation Technical Research Institute/ Allm Inc./

Olympus Corporation/ ClayTech, Inc.

**[Number of program graduates (including anticipated graduates)]** 1 (FY 2021), 4 (FY 2022), 11 (FY 2023), 15 (FY 2024), 13 (FY 2025)

**[Career paths after graduation (including anticipated paths)]** 9 to universities, 12 to private enterprise, 2 to public research institute, 2 to government agency, 14 to medical practitioner, 1 to start-up business, 4 to others As of November 2025

## Future healthcare challenges, explored and solved

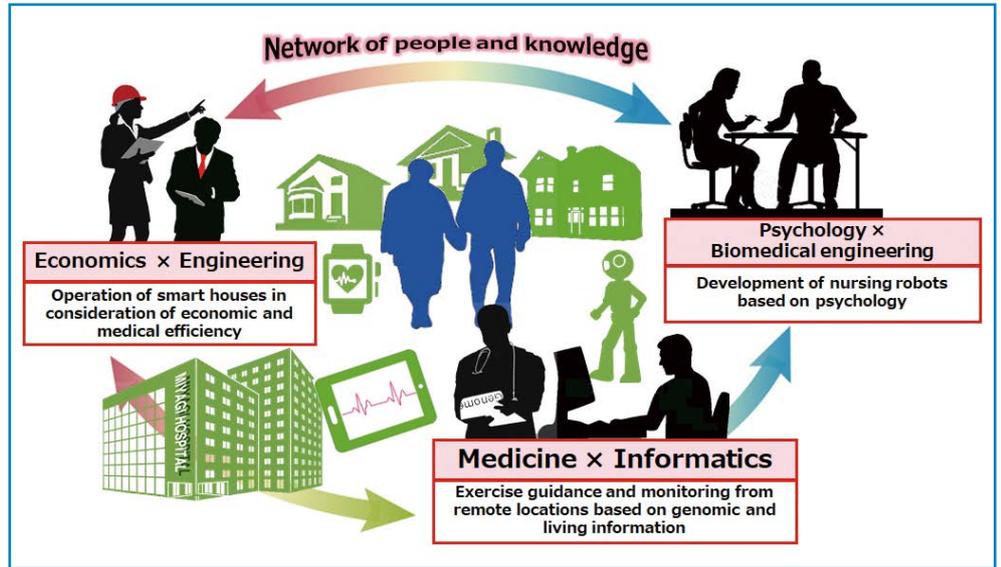
Bringing happiness to people through healthcare and welfare—that is the goal of students studying in our Future Healthcare Creation Graduate Program. Regardless of whether they come from humanities or sciences, students from various graduate schools learn specialized fields in Data, Technology, and Society from faculty across diverse disciplines. This program cultivates individuals who can explore healthcare challenges beyond their specialized fields and actively contribute to solving them.

The Tohoku region where we study is Japan's most advanced super-aged society, and Tohoku University and its affiliated facilities provide world-class medical care. The healthcare and welfare challenges in this environment represent the future of medical practice for regions across Japan and the world that will face similar issues. In this program, students from diverse disciplines learn design thinking in this privileged environment. Through internships looking to the future healthcare and welfare, they explore challenges and propose solutions. Observing the same phenomena through diverse, discipline-specific perspectives fosters insights and discussions that broaden graduate students' horizons, cultivating outstanding leadership and professionalism for society. Furthermore, sessions with numerous external lecturers, including top-tier corporate executives, provide opportunities to contemplate the practical realization of their research or work.

In the healthcare and welfare industries which are promising and essential to human well-beings, students learn to understand the strengths of their own expertise, acquire methods for solving societal challenges, and fulfill roles within teams. The stimulation from students and faculty extends beyond research, broadening the scope of their activities as working professionals and influencing their post-graduation career paths.

## Contributing to future medicalcare through diverse roles

Derived from a medical and healthcare educational framework, our program provides dialogue with professionals who spearhead innovation. This includes medical education by world-class researchers and mentoring by leading industry professionals. To cultivate practical international skills, we also provide intensive English training and overseas study opportunities. The program offers opportunities for graduate students to present their most important individual research. This



Graduates of this program play an active role as professionals with broad knowledge and deep expertise, who are able to draw synergy among expertise, and to quickly and accurately identify and solve the needs of various fields in society.



We conducted a build-up training at the Japan Heart Children's Medical Center in Cambodia. We had the opportunity to identify issues in developing countries and think about proposing solutions that are conscious of Japan and the world.

training in presenting one's work to non-specialists allows students to clearly understand the impact that stimulation from other fields has on their research.

Furthermore, facilitator faculty members, trained in specialized coaching, serve as mentors to support challenging activities while helping students balance their graduate research with program activities. This thorough multi-faculty guidance system is a distinctive feature of our environment, prioritizing student security and diversity. Since last year, program alumni have also participated as facilitator faculty and external lecturers, building their credentials as educators. Some students even pursue crowdfunding campaigns or corporate startups based on their own research and ideas.

The significant stimulation and diverse activities unavailable in typical graduate school life become catalysts for the translational research and for shifting perspectives.



In the medical device-focused acceleration program "MedTech Angels Season 4 (2024–2025)," the project "perle," which aims to develop personalized medicine for epilepsy, won the BD Fund Award and the RD Support Award.

## WISE Program for AI Electronics



**[Program Coordinator]** KANEKO Toshiro (Professor, Division of Electric Engineering, Graduate School of Engineering, Tohoku University)  
**[Fields of diplomas]** Doctor of Philosophy (Engineering) / (Information Sciences) / (Biomedical Engineering) / (Science) / (Letters) / (Economics), Doctor of Philosophy  
 Name of the program to be noted: WISE Program for AI Electronics  
**[URL]** <https://www.aie.tohoku.ac.jp/english/>



### Message from the President



**TOMINAGA Teiji**  
President, Tohoku University

### Fostering leaders with the ability and vision to realize a super-smart society based on co-creation with society, developing HR to lead the transformation of future society.

Tohoku University has been accredited as Japan's first university for International Research Excellence. In line with this recognition, we are advancing reforms in our graduate education to meet the standards of a world-class research university. In 2027, the functions of Advanced Graduate School will be further enhanced to strengthen centralized management, expand diverse and appealing graduate programs.

To better respond to social needs and academic advancements, we will foster brilliant researchers and entrepreneurs who will lead international initiatives, including in the industrial sector, by transforming conventional education into cross-disciplinary programs.

This program is deeply connected to our "Core Research Cluster" in "Spintronics," and plays a significant role in strengthening the university's strategic research capabilities. We will continue fostering highly specialized professionals who will make innovation happen continuously, in collaboration with society.

### Message from WISE Cooperating Institution

#### Fostering Collaboration and Knowledge Circulation through PBL



**GOTOH Kaoru**  
Head of the Electromagnetic Compatibility Laboratory, National Institute of Information and Communications Technology (NICT)

In this Project-Based Learning (PBL) course, graduate students work together with companies and research institutes to address real-world challenges, refining their practical thinking and problem-solving skills. Through discussions aimed at value creation, we gain many insights and inspiration from the students' fresh perspectives. We expect that the knowledge shared between academia and society will continue to circulate, deepening collaboration and fostering sustainable development through this ongoing partnership.

### Voices of Graduates

#### Bridging HPC and quantum technologies through interdisciplinary insight



**KUMAGAI Masahito**  
Assistant Professor, Graduate School of Information Sciences, Tohoku University

I was drawn to the interdisciplinary field of AI Electronics (AIE) and joined the program to pursue research bridging quantum technology and high-performance computing (HPC). Through AIE's interdisciplinary curriculum and PBL activities, I developed the ability to view research comprehensively from theory to implementation. The corporate internship also taught me the value of industry-academia collaboration and cross-disciplinary teamwork. The experiences I gained through AIE have become a strong foundation for my current research.

### Good Practice

#### PBL achievement symposium



Every year, we hold a symposium on outcomes from Project Based Learning (PBL) subjects, which produce and implement learning content in collaboration with partner companies. In the subjects, 4 to 5 students are researching, proposing solutions and verifying the issues presented by each company to develop bird's-eye view and practical skills. Each subject has its own characteristics in setting and approaching issues. At the symposium, all students who attended PBL subjects devised their own presentations, and many students addressed and solved social issues such as solutions using IoT sensors, protecting AI models from security attacks and detection of small children left in vehicles from a broad perspective. They showed their ideas for the future and learned that research and technological development are important in relation to society.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

25 (FY2019), 30 (FY2020), 40 (FY2021-FY2022), 30 (FY2023-FY2026)

**[Number of people engaged in the program]** 65

**[Students' affiliated schools and departments]**

6 graduate schools, 15 departments

<Graduate School of Engineering> Electronic Engineering, Electrical Energy System, Communication Engineering, Applied Physics,

Technological Social System

<Graduate School of Information Sciences> Computer and Mathematical Sciences, System Information Sciences, Applied Information Sciences

<Graduate School of Biomedical Engineering> Biomedical Engineering

<Graduate School of Science> Physics, Mathematics

<Graduate School of Arts and Letters> Japanese Studies, Global Humanities, Integrated Human Sciences

<Graduate School of Economics> Economics and Management

**[WISE Cooperating Institutions]**

6 private enterprises, 2 public research institutes

TOSHIBA CORPORATION/CANON MEDICAL SYSTEMS CORPORATION/EE&M Corporation/AISIN SOFTWARE Co., Ltd./ALPS ALPINE CO., LTD./TDK Corporation/National Institute of Information and Communications Technology/National Institute of Advanced Industrial Science and Technology

**[Number of program graduates (including anticipated graduates)]** 10 (FY2021), 8 (FY2022), 17 (FY2023), 17 (FY2024), 20 (FY2025)

**[Career paths after graduation (including anticipated paths)]** 31 to universities, 36 to private enterprises, 1 to public research institute, 4 to others

As of November 2025

## Fostering outstanding human resources to create innovations

For realizing the fourth industrial revolution and an ultra-smart society (Society 5.0), it is essential to fuse real and cyber space in every aspect of society to create new value and bring it to society, our life and industries.

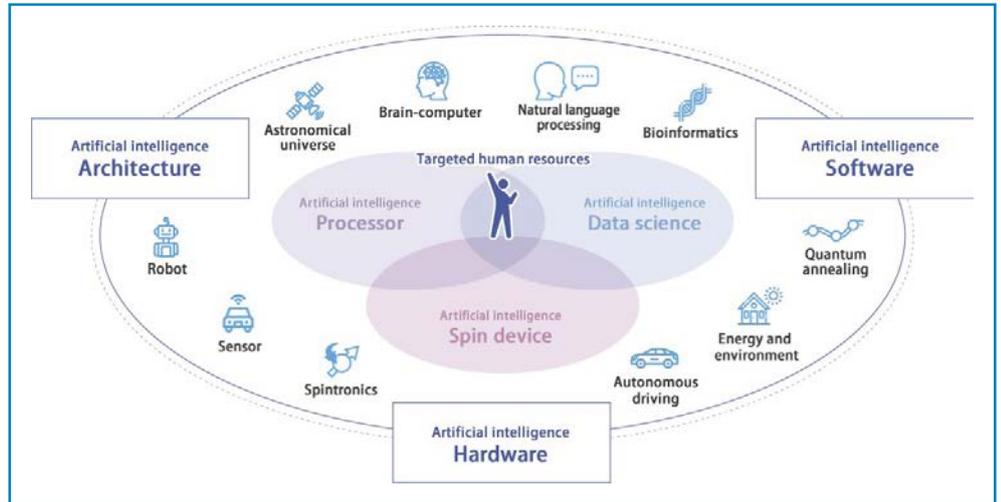
Research and development are required not only in algorithms and computer programs to process big data, but also in spintronics and electronics to develop devices and in computer architecture for designing processors that realize low-power consumption and high-performance computation.

The WISE program for AI Electronics aims to develop outstanding human resources for continuous innovation by providing educational courses to learn algorithms and computer programs for the AI and architecture, centering on spintronics and research on spin devices, ultra-sensitive sensors, and other high-speed/low-power devices.

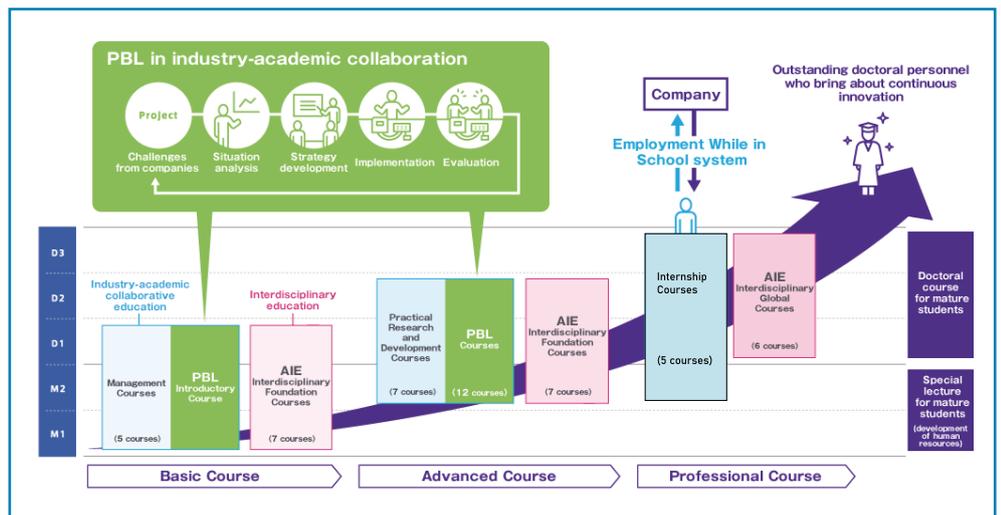
## Education with industry-academia and social collaboration

The WISE program for AI and Electronics (AIE) places the highest priority on areas that contribute toward new value creation. The program builds a five-year integrated graduate school education system consisting of “interdisciplinary education” and “industry-academic collaborative education”. The interdisciplinary education is constructed by highly specialized researchers in diverse academic fields to develop student’s abilities to take a bird’s eye view to penetrate real and cyber space, and a multidimensional interconnection in Society 5.0. The industry-academic collaborative education is for students to develop practical skills to resolve social issues cooperating with industries and society.

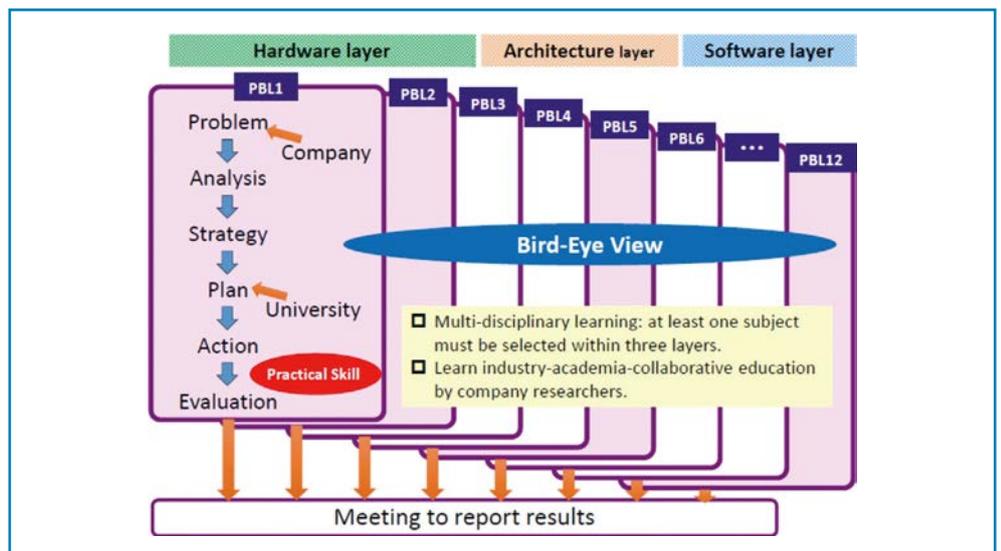
The five-year integrated education is divided in three courses: basic course, advanced course, and professional course. In the basic course, leader seminars are held with industry-academia collaboration. PBL (Project Based Learning) subjects are built up in the advanced course with collaborations between researchers from partner companies and faculty members. The students in the program can take up to four PBL subjects. They are expected to acquire the ability to solve problems and to become leaders who can play an active role in the industrial world. In the advanced and professional courses, the AIE program prepares an international internship program to foster outstanding doctoral students who will play a central role on the international stage, and a long-term corporate internship program



Fostering outstanding human resources who have a bird’s-eye view and practical ability in the new field of AI electronics and create continuous innovations involving technologies from different fields



An education system consisting of “interdisciplinary education” constructed by highly specialized researchers in diverse academic fields and “industry-academic collaborative education” by researchers in industry and faculty members



PBL courses

aiming for further development of practical skills necessary in industry.

In addition, “Employment System in School” is

formed, which allows students to get a job at a company even while they are still in school. This system will pave a new path to build diverse career paths.

## Ph.D. Program in Humanics



[Program Coordinator] YANAGISAWA Masashi Professor, Director of International Institute for Integrative Sleep Medicine, University of Tsukuba

[Fields of diplomas] Doctor of Philosophy in Medical Sciences, Doctor of Philosophy in Science, Doctor of Philosophy in Engineering

Name of the program to be noted: Ph.D. Program in Humanics

[URL] <https://www.phd-humanics.tsukuba.ac.jp/en/>



### Message from the President



**NAGATA Kyosuke**  
President of the University of Tsukuba

### Creating a new paradigm ~Developing outstanding talents who can challenge “ZERO to ONE”~

The Humanics program is a Ph.D. program that ensures interdisciplinary, leading-edge, world-class standards of education by combining top-tier national and international instructors and students with academic, industry, and governmental circles across disciplines.

As student-led new initiatives, the “double-mentor system” and “reverse mentor system” are adopted. Basic study of biomedical sciences is given to students having studied in physical sciences/ engineering/ informatics fields, and vice versa. Until now, an educational course, where students having graduated from a 6th-year medical course can learn physical sciences/ engineering/ informatics such like the Humanics program, was hard to be established in Japan, so that this is a true educational course for MD-Ph.D. students.

Under these new initiatives, we develop outstanding talents who can challenge “ZERO to ONE”.

### Message from WISE Cooperating Institution

#### Changing society with “Humanics” x “Cybernetics”



**SANKAI Yoshiyuki**  
President and CEO, CYBERDYNE Inc.;  
Professor, University of Tsukuba;  
Program Director of SIP Program,  
Cabinet Office

CYBERDYNE, a listed business venture originating from University of Tsukuba, a MEXT-designated research institute, and a certified developer and vendor of international medical devices, has been strengthening basic research, product application in society, and cultivation of people concurrently to promote Medical Innovation Cycle worldwide. Our new scholarship program provides young researchers, including students of the Humanics Program, with the opportunity to shape the future. Cybernetics x Humanics can expand our horizon enormously.

### Voices of Graduates

#### Beyond Engineering and Medical Sciences



**EZAKI Seioh**  
Doctor, Orthopaedic Surgery, University of Tsukuba Hospital, Department of Orthopaedic Surgery

I graduated from College of Engineering Systems of the University of Tsukuba and obtained medical licenses in both China and Japan after graduation. In the Ph.D. Program in Humanics, I conducted research on the rehabilitation use of the HAL robot suit for spinal disease patients and gait analysis with the supervision of Prof. Yamazaki in Orthopedics and Prof. Suzuki in Intelligent Informatics under the double-mentor system.

I think this program is best for challengers who are willing to integrate the different research fields.

### Good Practice



### Career Platform for Humanics: CPx, an originally developed portfolio-based competency achievement assessment system

Ph.D. Program in Humanics has developed the Career Platform for Humanics (CPx) as a system to assess the competency achievement of each student. CPx provides the evidence-based, quantitative assessment of the experiences obtained from lectures and research activities through evaluating tangible and diverse “skills” that constitute the each competency. There are 12 different skill sets that can be selected according to the future image of students. CPx allows students to self-reflect and set their own learning goals.

### DATA

[Number of students recruited (For FY2026, number of students to be recruited)] 15 each (FY2019-FY2026)

[Number of people engaged in the program] 110

[Students' affiliated schools and departments]

4 graduate schools, 10 programs (FY2018-FY2019)

2 graduate schools, 4 degree programs, 9 programs (FY2020-)

<Graduate School of Pure and Applied Sciences> Physics, Chemistry, Materials Science and Engineering

<Graduate School of Systems and Information Engineering> Computer Science, Intelligent Interaction Technologies

<Graduate School of Life and Environmental Sciences> Biological Sciences, Life Sciences and Bioengineering

<Graduate School of Comprehensive Human Sciences> Biomedical Sciences, Clinical Sciences, Kansei, Behavioral and Brain Sciences

(After restructuring of schools and programs in April, 2020)

<Graduate School of Science and Technology>(Degree Programs in Pure and Applied Sciences) Physics, Chemistry, Engineering Sciences (Degree Programs in Systems and Information Engineering) Computer Science, Intelligent and Mechanical Interaction Systems (Degree Programs in Life and Earth Sciences) Biology, Life and Agricultural

Sciences

<Graduate School of Comprehensive Human Sciences> (Degree Programs in Comprehensive Human Sciences) Neuroscience, Medical Sciences

[WISE Cooperating Institutions]

4 universities, 2 national institutes, 6 companies

University of California, Irvine / University of Bordeaux / National Taiwan University / The University of Edinburgh / National Institute for Materials Science / National Institute of Advanced Industrial Science and Technology / TOYOTA MOTOR CORPORATION / Hitachi, Ltd. / Shimadzu Corporation / CYBERDYNE, Inc. / Astellas Pharma Inc. / S'UIMIN Inc.

[Number of program graduates (including anticipated graduates)] 4 (FY 2022), 6 (FY 2023), 4 (FY2024), 17 (FY 2025) (expected to graduate)

[Career paths after graduation (including anticipated paths)] 10 to universities, 1 to medical practitioner, 3 to research institutes

As of October 2025

## Anticipated Ph.D. talents

To create a new paradigm by integrating different disciplines of biomedical sciences and physical sciences/engineering/informatics, it is necessary to develop leaders who can talk with each other using the languages of both fields, understand both deeply, and integrate them in order to make it a reality. For example, da Vinci, a surgical support robot, was developed from the idea of a surgeon entrepreneur with an engineering background, and the robot suit HAL was inspired and implemented in the real world by an engineer who had studied human physiology. Optogenetics, a leading candidate for the Nobel Prize, that manipulates neuronal activity with light was founded by a psychiatrist who was well versed in optical technologies and genetic engineering. However, the educational system to develop such talents did not exist in our country.

This graduate program sheds light on the fundamental principles of physiology and pathology of the human, defines “Humanics” as a discipline that generates new science and technology to achieve a healthy and comfortable life of human beings in the society, and is designed to nurture the Humanics talents. The Humanics talents should be doctoral-level professionals with knowledge and skills in the fields of both biomedical sciences and physical sciences/engineering/informatics, and have the expertise to combine these bi-disciplinary knowledge and skills. They should also have flexible, multifaceted creativity which can be applied to the unpredictable future, based on the expertise. Through the development of expertise and applied skills, this Ph.D. program cultivates individuals capable of independently uncovering basic principles of human life, creating systems to reconstitute and assess the validity of discovered principles, and building new theories of life.

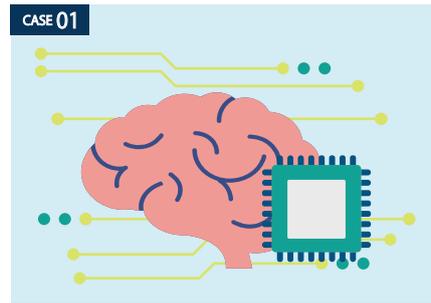
The program aims to develop outstanding talents who can challenge to create a qualitatively different paradigm that goes far beyond the common sense of biomedical sciences -- that is, ZERO to ONE -- by always incorporating the knowledge and technology from different fields.

## Outstanding features

This program 1) has a remarkable characteristic of creating a new dimension of study, termed “Humanics,” under the cross-sectoral collaboration among internationally competitive, outstanding research

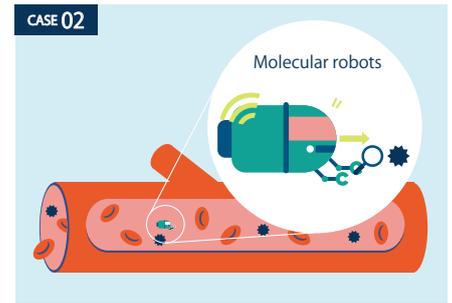
## Humanics Aims for Fusion Research

Humanics aims at integrated research that creates a new qualitatively different paradigm that goes far beyond the common sense of biomedical science and science, engineering and informatics.



Development of artificial neural network devices that can be linked to the brain, and understanding of sensibility, motivation, and thoughts, etc.

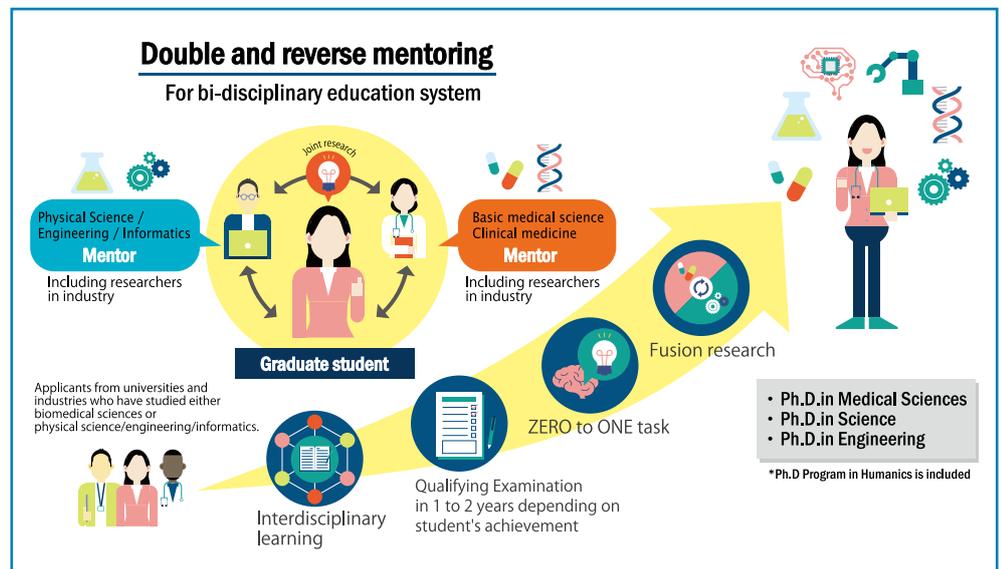
**Improvement of cognitive function and mental health**



Development of molecular robots to intervene in cell functions based on the understanding of molecular pathogenesis and to control infectious diseases and cancer.

**Overcoming intractable diseases by molecular robots**

Creating the “Humanics” by integrating biomedical sciences and physical sciences/engineering/informatics, and cultivating outstanding talents who can overcome intractable challenges to life and health



Under the bi-disciplinary education system with a pre-admission program toward a graduate school, cultivating a comprehensive view of individuals with professional knowledge and skills in multiple fields and capability of integrating them

institutions which are specialized in biomedical sciences and physical sciences/engineering/informatics, respectively, both inside and outside of the University of Tsukuba. In addition, the program 2) cultivates individuals' bi-disciplinary expertise with doctoral-level knowledge and skills by a full “double mentor system” in which each student is guided by two faculty members, one from the field of biomedical sciences and the other from physical sciences/engineering/informatics, in their respective laboratories in the course of pursuing joint research projects, and 3) offers prospective students an opportunity to have an interdisciplinary background of the program before enrollment as a pre-admission program in their undergraduate years, which creates a seamlessly integrated system for transition to graduate education.

## World-leading Innovative Graduate Study Program for Life Science and Technology

WINGS LST

WINGS LST  
Life Science & Technology

**[Program Coordinator]** OKADA Yukinori (Professor, Graduate School of Medicine, The University of Tokyo)  
**[Fields of diplomas]** Doctor of Medical Science, Doctor of Engineering, Doctor of Philosophy  
 Name of the program to be noted: Name of the program to be noted: The World-leading Innovative Graduate Study Program for Life Science and Technology  
**[URL]** [http://square.umin.ac.jp/wings-lf/index\\_en.html](http://square.umin.ac.jp/wings-lf/index_en.html)



### Message from the President



**FUJII Teruo**  
President, The University of Tokyo

### Fostering leaders who will contribute to human health by exploring the truth of life science with deep insights outside the boundaries of existing fields

The World-leading Innovative Graduate Study Program for Life Science and Technology (WINGS-LST) is now entering our first year of self-sustainability of operation, intending to develop “talents who will significantly contribute to human health from a long-term perspective” with deep insights outside the boundaries of existing fields. The program covers a wide range of life science and technology research fields, from the elucidation of basic principles to applied technologies that lead to clinical practice. WINGS-LST will cultivate doctoral students with a global perspective, high ethical standards, and tenacious practical skills, who have high expertise in their own fields and create new academic fields and technologies. By further accelerating the reform of education in graduate school through this program, I hope to meet the university’s social mission of fostering outstanding researchers who will address the resolution of global challenges faced by human society.

#### Message from WISE Cooperating Institution

##### What educational frameworks are needed to translate science into society



**OOHASHI Tatsuya**  
Sysmex Corporation  
Reagent Engineering -  
Executive Vice President

Universities have accumulated a lot of scientific results. What kind of vision is needed to put them into practice in a “timely” manner and make them internationally competitive in the market?

This program has the potential to be a game-changer. It brings together students from diverse backgrounds in the broad field of life sciences, and many partner companies bring their expertise to the program.

We will continue to work together to increase their opportunities.

#### Voices of Graduates

##### Driving value and social impact through interdisciplinary collaboration



**SUEYOSHI Daiki**  
Formulation Development  
Department, Pharmaceutical  
Technology Division, Chugai  
Pharmaceutical, Co., Ltd.

I joined the predecessor of this program to explore how interdisciplinary collaboration could lead to new value creation and its implementation in society. Through interdisciplinary research, an overseas internship, and engagement with leaders from industry, government, and academia, as well as peers with diverse backgrounds, I was able to gain multifaceted perspectives. These experiences have been instrumental in shaping my current role as a pharmaceutical researcher, where I strive to develop innovative drug products.

### Good Practice



#### WINGS Journal Club – with young first authors of cutting-edge papers as advisers and role models –

WINGS Journal Club is a research training session where students study about cutting-edge papers in various research fields related to life science and technology. Program students present and discuss a cutting-edge paper in front of a young first author of the paper, sometimes a graduate of the Program, who will serve as adviser. It may be a bit intimidating to present in front of the author, but the best adviser, who is just a bit ahead of your time, will answer your questions on the spot! After the seminar, we have a mini get-together, where students can talk about their career path with the advisers, who are their role models, in a relaxed atmosphere. Since 2020, the sessions are held online, making it possible to invite graduates from afar, including those who have set up their businesses abroad, to participate as advisers.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

86 (FY2018), 40 (FY2021), 40 (FY2022), 40 (FY2023), 40 (FY2024), 40 (FY2025)

**[Number of people engaged in the program]** 89

**[Students' affiliated schools and departments]**

4 graduate schools, 22 departments

<Graduate School of Medicine> Molecular Cell Biology, Functional Biology, Pathology Immunology and Microbiology, Radiology and Biomedical Engineering, Neuroscience, Social Medicine, Internal Medicine,

Reproductive, Developmental and Aging Sciences, Surgical Sciences

<Graduate School of Engineering> Bioengineering, Mechanical Engineering, Electrical Engineering and Information Systems, Precision Engineering, Materials Engineering, Applied Chemistry, Chemical System Engineering, Chemistry and Biotechnology, Nuclear Engineering and Management

<Graduate School of Pharmaceutical Sciences> Pharmaceutical Sciences, Pharmacy

<Graduate School of Science> Biological Sciences

**[WISE Cooperating Institutions]**

9 companies

Astellas Pharma Inc./Olympus Corporation/CANON MEDICAL SYSTEMS CORPORATION/SHIONOGI & CO., LTD./Sysmex Corporation/Janssen Pharmaceutical K.K./DAIICHI SANKYO COMPANY, LIMITED/Takeda Pharmaceutical Company Limited/Utoko Innovation Platform Co., Ltd.

**[Number of program graduates (including anticipated graduates)]** 28 (FY2020), 36 (FY2021), 38 (FY2022), 41 (FY2023), 35 (FY2024), 36 (FY2025)

**[Career paths after graduation (including anticipated paths)]** 64 to universities, 89 to private enterprises, 4 to public research institutes, 4 to government agency, 5 to medical practitioner, 12 to others

as of November 2025

## Human talents who can create new academic fields and contribute to human health

The World-leading Innovative Graduate Study Program for Life Science and Technology (hereinafter “this program”) aims to develop talents who will significantly contribute to human health from a long-term perspective. For this reason, it covers a wide range of life science and technology research fields, from elucidation of basic principles to applied technologies that lead to clinical practice.

In this program, we aim to foster human talents who can create new academic fields in the future by co-developing excellence in three assets: expertise in specialized disciplines, broadness of scientific perspective, and agile engagement with others to develop new opportunities.

### (2) Development of human talents at the frontiers of life science and technology

In this program, we aim to foster human talents at the cutting edge of life science and technology disciplines: we promote discoveries and elucidation of mechanistic insights in all phenomena of life using new technologies, while we also develop novel and advanced technologies based on scientific principles and theories of life. Innovative areas in academic disciplines and technologies do not arise spontaneously. We believe that they are created by enhancing expertise, broadening perspectives through development of big picture thinking skills and meeting with experts in a variety of fields, and developing interdisciplinary research by engaging others.

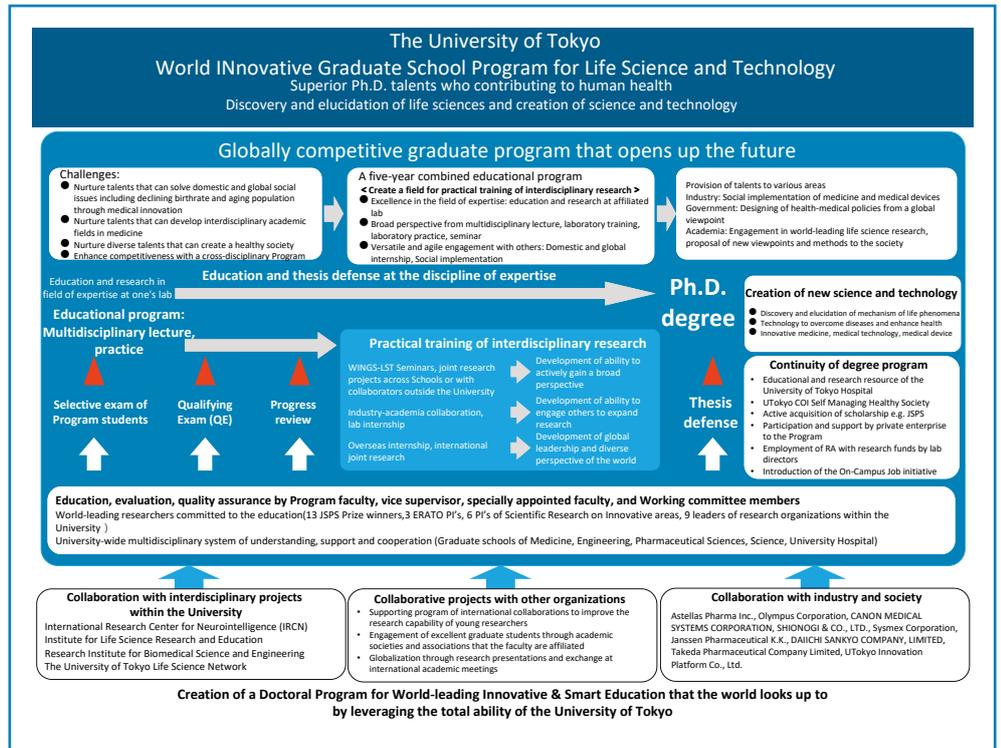
**Specialized expertise:** Specialist capability that makes an individual second to none with regard to a particular purpose or area of knowledge.

**Broader perspective:** Based on the expertise above, ability to survey various academic fields and identify fundamental cross-disciplinary problems. Faculty members who will provide guidance to the program students are leaders conducting cutting edge research in their own discipline, while remaining flexible and open to methods and ideas of other fields.

**Agile engagement:** Ability to think about the way research should proceed based on the big picture, and to develop research by building collaborative relationships with researchers in appropriate fields. Communication skills, capacity for understanding, information gathering ability, etc., are also included.

## Integrate technology and mechanistic elucidation, and take initiative in the development of academic disciplines and industries that contribute to human health.

A unique feature of this program is that students are



We provide a globally competitive graduate school education program that will open up the future. It will nurture Ph.D. talents who can create new academic fields and technologies, through practical interdisciplinary training.



At the Colloquium, all members of the Program got together to enjoy lectures by guest speakers, students group work, and discussion with Cooperating Institutions.

able to learn about both the elucidation of life phenomena (related to basic medical sciences and life sciences) using state-of-art technologies, and the technologies (related to clinical practice and engineering) that contribute to human health based on the elucidated principles and theories.

Life science has made tremendous progress and has been able to elucidate new phenomena thanks to many technical developments, such as recombinant DNA technologies based on biochemistry or microscopy based on physics. In parallel, new principles have

revealed the target molecules for drug discovery, and new treatment techniques have been created. In other words, in order to elucidate life phenomena and create technologies, an ecosystem where both are performed at a highest level as two halves of a whole is necessary. Therefore, this program aims to promote knowledge professionals who can integrate both technology and mechanistic elucidation, as well as contribute to the development of academic disciplines and industries that contribute to human health.

# Excellent Leader Development for Super Smart Society by New Industry Creation and Diversity



**[Program Coordinator]** Ohtsu Naoko (Director of Organization for WISE Program, Professor, Graduate School of Agriculture, Agricultural Production Sciences course, Tokyo University of Agriculture and Technology)※At the end of the program

**[Fields of diplomas]** Doctor of Philosophy (Agriculture), (Engineering), (Philosophy), (Life Sciences), (Veterinary Medicine)  
Name of the program to be noted: Doctoral Program for World-leading Innovative & Smart Education

**[URL]** <https://www.wise.tuat.ac.jp/en/>



## Message from the President



**CHIBA Kazuhiro**  
President, Tokyo University of Agriculture and Technology

### Doctoral human resources will lead the way in shaping the future knowledge society

We regard doctoral human resources as central to pioneering the knowledge society of the future. Through scientific inquiry, we foster knowledge grounded in public responsibility, social relevance, global awareness, and ethical integrity. Our aim is to nurture individuals who value humanity, possess the breadth to generate new value, and contribute to an evolving world.

This program stands at the forefront of that mission. It offers a creative arena where selected graduate students envision the next era, engage in dialogue, take action, and gain the power to transform the world. By refining one another's diverse identities and originality, students convert their talents into social impact. Guided by harmony, maturation, and co-creation, they build the sustainable knowledge demanded by global science and cultivate the strong doctoral capabilities needed to lead a super smart society where the cyber and physical realms converge.

### Message from WISE Cooperating Institution

#### Creating Social Value via Analytical-Measurement Science Collaboration



**SHINOHARA Makoto**  
Senior Advisor, Shimadzu Corporation

Shimadzu Corporation upholds the philosophy of "Contributing to Society through Science and Technology" and is committed to realizing a sustainable society through the advancement of analytical and measurement technologies. Through our collaboration with the WISE Program at Tokyo University of Agriculture and Technology, we promote education and research grounded in measurement science and help foster the next generation of leaders who will address increasingly complex global challenges in the environment, food, and energy sectors.

### Voices of Graduates

#### Broadening Perspectives through Interdisciplinary Collaboration



**HIGASHITANI Takuya**  
Research Scientist, Grid Innovation Research Laboratory, Central Research Institute of Electric Power Industry

As a researcher in the energy field, which is the fundamental social infrastructure, I joined this program to gain a multifaceted perspective that spans across different fields and the real world. Through problem-oriented courses, I collaborated with students from agriculture and chemistry to design an energy-related business in the agriculture field. This experience helped me realize how my expertise can contribute to society and strengthened my confidence as a researcher.

## Good Practice

### Hinomi221, the fruit of "agriculture-engineering collaboration" based on a multidisciplinary and diversity approach



Hinomi221 is a company created by WISE Program students with different majors. The skills and experience acquired during our 5-year tenure in the program led to the creation of this company, which focuses on developing solar engineering solutions for agricultural value chain problems. Our first target is the reduction of food loss, which can be up to 70% for some cultivated crops in developing countries due to the lack of adapted technologies. In Hinomi221, we have developed a multi-crop-to-food processor that uses solar energy and has a simple design, taking into consideration the maintenance needs in developing countries while ensuring sustainability. We have associated it with a sustainable zero-waste business model, where even the remains such as peels or shells are considered valuable material for composting and cosmetics.

## DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

27 (FY2019), 30 (FY2020), 24 (FY2021), 23 (FY2022), 27 (FY2023), 30 (FY2024), 30(FY2025), 25(FY2026)

**[Number of people engaged in the program]** 2

**[Students' affiliated schools and departments]**

4 graduate schools, 16 departments

<Graduate School of Agriculture> Agriculture, Veterinary Sciences

<Graduate School of Engineering> Biotechnology and Life

Science,Department of Biomedical Engineering, Applied Chemistry, Mechanical Systems Engineering,Department of Electrical Engineering and Computer Science,Joint Doctoral Program for Sustainability Research,Industrial Technology and Innovation,Electrical and Electronic Engineering,Electronic and Information Engineering

<Graduate School of Bio-Applications and Systems Engineering> Bio-Functions and Systems Science, Food and Energy Systems Science,Cooperative Major in Advanced Health Science

<United Graduate School of Agricultural Science> Biological Production Science, Applied Life Science, Symbiotic Science of Environment and Natural Resources, Agricultural and Environmental Engineering, Agricultural Economy and Symbiotic Society

**[WISE Cooperating Institutions]**

1

SHIMADZU CORPORATION

**[Number of program graduates (including anticipated graduates)]** 8 (FY 2022), 19 (FY 2023),16(FY 2024),16(FY 2025)

**[Career paths after graduation (including anticipated paths)]** 7 to universities, 2 to private enterprises, 5 to public research institute,2 to be decided

As of October 2025

## Driving Super Smart Society by New Industry and Diversity

The TUAT-WISE Program bases on agriculture and engineering and fosters excellent doctoral human resources who has acquired skillsets of bold vision for the future and steady implementation. They are expected to create new fields by their cutting-edge researches; “Creation of New Industries”.

The engineering education in TUAT includes artificial intelligence (AI), machine learning, advanced measurement and sensing, IoT, human-assisting robots, smart mobility (automatic driving), energy control (storage batteries, device materials), etc. as its strength. While that in agricultural education are food production, plant factories, animal husbandry and veterinary medicine, forest biomass, environmental conservation (sea, water, air, soil), infectious diseases, plant genomics, breeding, microbes, environmental monitoring etc. The goal is to create innovation through “agriculture- engineering collaboration” by mutual understanding of diverse fields and exchanging their knowledge and technologies.

In the first step of the curriculum, we aim to improve students’ understanding of diversity, internationality and English debate skills across gender, nationality, and specialty for acquiring research conceptualization, team formation and leadership. In the second step, students try to launch joint projects and construct joint research team. In the third step, students will develop an action plan to effectively apply their own research achievements to society.

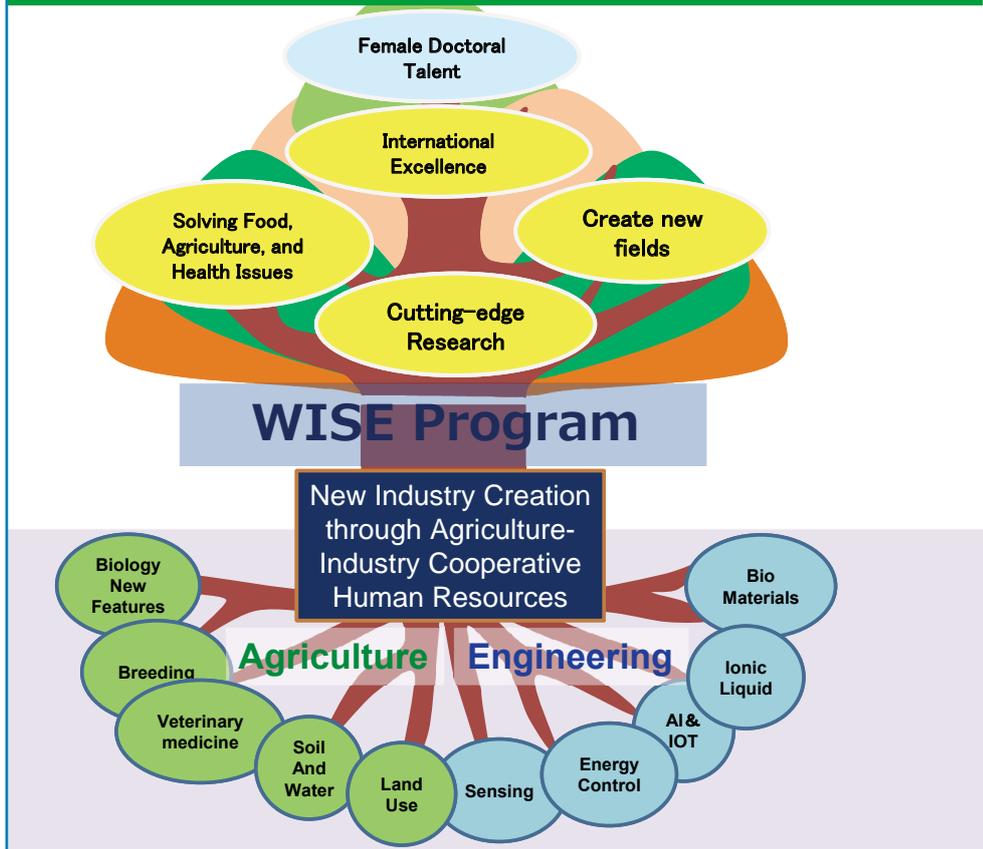
## Leaders for Academia, Industry, International Organization

Since FY2025, the TUAT-WISE Program has been operating independently, supported by its own institutional funding, under the Institute for Fostering Leadership to create future value through Outstanding Research, Innovation and Sustainable Higher education (FLOuRISH). As a cross-disciplinary “research and education special zone” that bridges agriculture and engineering, FLOuRISH offers the FL-SPRING / FL-BOOST scholarships for doctoral students, providing research grants, support for domestic and international research, and entrepreneurship programs designed to enhance advanced, interdisciplinary research capabilities.

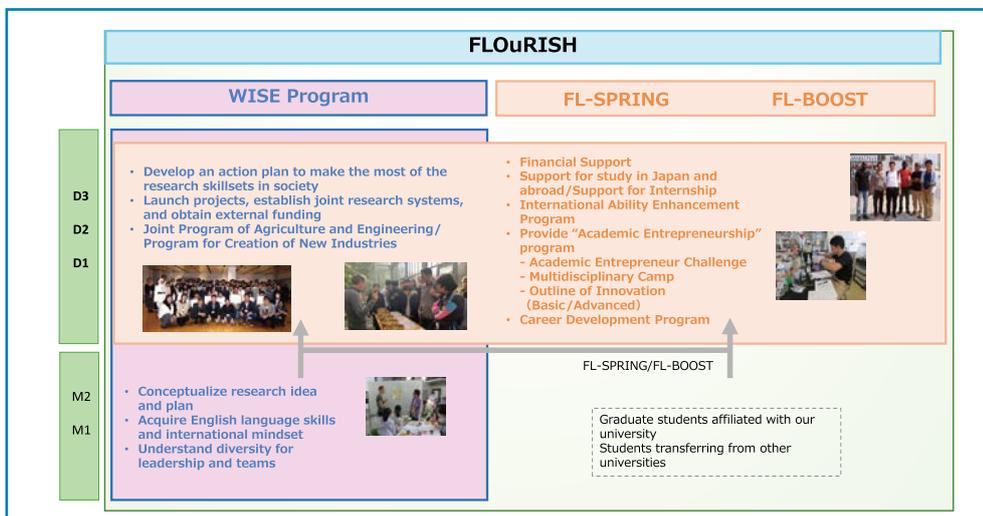
In the TUAT-WISE Program, a five-year integrated curriculum strengthens students’ abilities in research design, English communication, and diversity awareness from the master’s level onward, building a coherent progression into the doctoral stage.

Strengthening education from an international perspective is essential for cultivating excellent leaders. FLOuRISH conducts joint training programs with partner universities in Asia and Europe, where students discuss how cutting-edge technologies can address global challenges.

## Excellent Leader Development for Super Smart Society by New Industry Creation and Diversity



The TUAT-WISE Program bases on agriculture and engineering and fosters excellent doctoral human resources who can execute “Creation of New Industries”; new fields creation by their cutting-edge researches.



Since FY2025, the TUAT-WISE Program has been operating on its own institutional funding under FLOuRISH, offering an integrated five-year curriculum to cultivate excellent leaders who will drive the emerging “Super Smart Society.”

This initiative is incorporated into the TUAT-WISE Program as the “International Workshop,” which enhances students’ global outlook and English discussion skills.

Furthermore, the program integrates “Drs. Café,” a forum where researchers active in diverse sectors—including academia, industry, policymaking bodies, and international organizations—engage in dialogue with students. As a third-stage course, the program also offers an “Multidisciplinary Camp,” in which doctoral graduates

serve as mentors and students from different laboratories collaborate in a residential research setting.

Graduates of the TUAT-WISE Program, having gained a broad and enriched perspective, pursue highly diverse career paths. They advance not only to universities and research institutes but also into industry, with some even founding start-up companies.

## Creating sustainable societies through [Material×Information] multi-talented human resource development



**[Program Coordinator]** YAMAGUCHI Takeo (Professor, Institute of Integrated Research/School of Materials and Chemical Technology, Institute of Science Tokyo)

**[Fields of diplomas]** Doctor of Engineering, Doctor of Science, Doctor of Philosophy

Name of the program to be noted: Academy for Convergence of Materials and Informatics (TAC-MI)

**[URL]** <https://www.tac-mi.titech.ac.jp/en/>



### Message from the President



**OHTAKE Naoto**  
President and CEO, Institute of Science Tokyo

### University-wide efforts to empower students to become multitiered individuals in materials science and informatics

Science Tokyo was established in October 2024 to pursue “science of and for the people, society, and planet.” It aims to contribute to advancement of research, education, and medical care along with society through self-directed collaboration.

This cross-sectional program empowers students to become “multitiered individuals” who can capitalize on original ideas for social innovation in the interdisciplinary fields of materials science and informatics. The program provides specialized doctoral education in collaboration with private corporations, the National Research and Development Agency, and top-notch overseas universities.

The program was continued and expanded into the “Materials and Information Sciences Course,” a new graduate major for doctoral students launched in April 2025 focused on education informed by engagement with industry partners.

#### Message from WISE Cooperating Institution

##### Expectations for Multitiered Individuals in Materials and Information



**IWAZAKI Yoshiki**  
General Manager  
Materials Science Laboratory,  
Research and Development  
Laboratory, TAIYO YUDEN CO.,  
LTD

In the modern era of fierce international competition among electronic device companies, the need for multitiered individuals capable of developing superior electronic materials is increasing. As a manufacturer of electronic components, we actively seek this type of talent who can conduct materials R&D. In this year’s Practice School, we observed the students’ diligent efforts to solve challenging issues. We sincerely hope that this program will continue to develop to cultivate outstanding leaders who drive social transformation.

#### Voices of Graduates

##### Expanding Research and Perspective through Materials × Information



**ASANO Sho**  
MITSUBISHI KINZOKU COMPANY,  
LIMITED Business Creation  
Sector SE Business  
Development Unit

I joined this program with the belief that learning computational science methods alongside my own experimental research approaches would enrich the depth of my research. Through lectures, exercises, and independent study, I was able to deepen my research from the “Materials × Information” perspective. Interactions with industry mentors and peers from other fields broadened my view of research and its social applications. I now utilize these experiences in my role as an R&D engineer, working to commercialize new materials.

### Good Practice



#### Science Tokyo’s original “Practice Schools” in Materials Informatics Students propose solutions to companies’ most pressing problems by utilizing material and information science

We implement “practice schools” at companies – as first-year doctoral program courses – at which faculty members and students work together for 6 weeks to access information throughout the company in large volumes and solve its pressing issues. Practice schools in AY 2024 were conducted in cooperation with 2 sites: TAIYO YUDEN and Asahi Kasei, and while in AY 2025, they were conducted in cooperation with 2 sites: TAIYO YUDEN and AKEBONO BRAKE INDUSTRY. These companies explained clear themes relating to their R&D and production, and presented expected results such as direction for improvement and solutions. This work differs from students’ usual doctoral research activities. However, even in the limited time frame of 6 weeks, they made remarkable achievements by effectively utilizing informatics and simulation techniques.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

35 (FY2019), 20 each (FY2020-FY2025)

**[Number of people engaged in the program]** 70

**[Students’ affiliated schools and departments]**

6graduate schools,13departments

<School of Materials and Chemical Technology>Chemical Science and Engineering,Materials Science and Engineering

<School of Science>Chemistry,Physics

<School of Computing>Mathematical and Computing Science,Computer Science

<School of Life Science and Technology>Life Science and Technology

<School of Engineering>Mechanical Engineering,Systems and Control Engineering,Electrical and Electronic Engineering,Information and Communications Engineering

<School of Environment and Society>Transdisciplinary Science and Engineering, Innovation Science

**[WISE Cooperating Institutions]**

2 public research institutes,32 companies

NIMS/AIST/AGC Inc./AKEBONO BRAKE INDUSTRY CO., LTD. /ASAHI KASEI CORPORATION/Dai Nippon Printing Co., Ltd./Hamamatsu Photonics K.K./

Idemitsu Kosan Co., Ltd./JEOL Ltd./JFE Steel Corporation/Kurita Water Industries Ltd. /KYOCERA Corporation/Mitsubishi Chemical Corporation/MITSUBISHI GAS CHEMICAL COMPANY, INC./MITSUBI KINZOKU COMPANY, LIMITED/NGK INSULATORS, LTD./NIPPON KAYAKU CO., LTD./Nippon Light Metal Company, Ltd./Nissan Motor Co., Ltd./Niterra Co., Ltd./Panasonic Industry Co., Ltd./Resonac Corporation/SCREEN Holdings Co., Ltd./SEIKO EPSON CORPORATION/SUMITOMO CHEMICAL Co., Ltd./Sumitomo Heavy Industries, Ltd. /TAIYO YUDEN CO., LTD./TDK Corporation /TODA KOGYO CORP. /Toray Industries, Inc./Toshiba Corporation/TOSOH CORPORATION/Toyo Seikan Group Holdings, Ltd./Tsukishima Kikai Co., Ltd.

**[Number of program graduates (including anticipated graduates)]** 7 (FY 2021), 14 (FY 2022), 20 (FY 2023), 19 (FY 2024), 21 (FY 2025)

**[Career paths after graduation (including anticipated paths)]** 19 to universities, 47 to private enterprise, 5 to public research institute

As of November 2025

### Fostering individuals who can create new industries

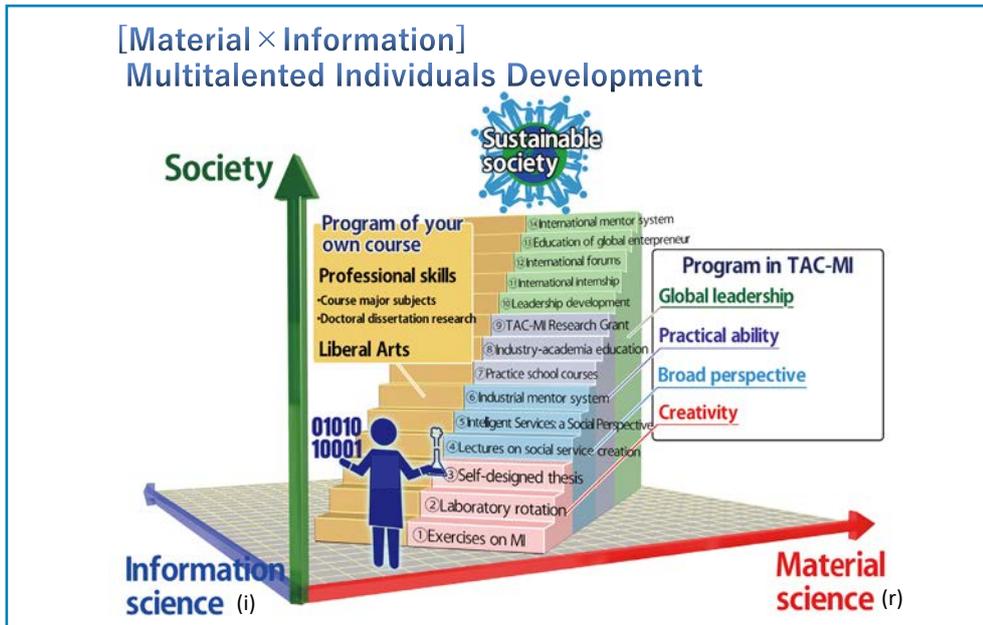
The program empowers students to become “multitalented individuals” who utilize informatics to conceptualize new ideas through multifaceted thinking and a broad perspective as well as contemplate new social services when approaching original research on materials and informatics. Multitalented individuals are expected to create new industries that link materials and informatics to build a sustainable society. Although the manufacturing industry in Japan is very strong, industry growth necessary to continue to lead the world will be difficult using the conventional way of thinking.

Due to advances in informatics such as data science, simulation, and machine learning, the discovery and design of new materials are becoming possible. The era utilizing information technology has arrived, allowing market-specific optimization and production management of devices and processes as well as the creation of social services from consumer trends. However, traditional materials research is conducted at a specific level such as the molecular material or device and process level. A broader perspective that encompasses the eventual social services has yet to be fostered. Consequently, graduate-level education must aim to converge materials science and informatics through a broad perspective from molecules to social services. Students develop the following abilities: 1) creativity to realize multifaceted ideas across the fields of materials science and informatics, 2) a broad perspective to identify social issues accurately by sifting through a vast amount of information, 3) initiative to take action to solve challenges by spiraling outward and expanding from the atomic or molecular level to social innovation towards attaining a sustainable society, and 4) global leadership ability to introduce new services to the world.

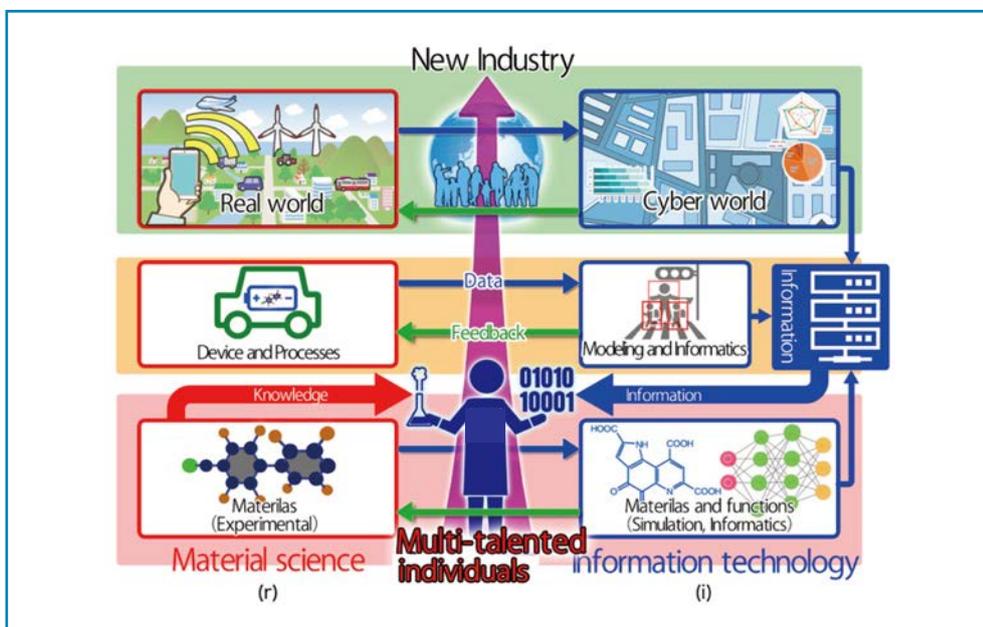
By working in a team of exceptional students from diverse backgrounds to tackle various challenges, students learn different viewpoints and foster a cross-disciplinary understanding to communicate effectively. The program is offered as a joint effort of six graduate schools in charge of the program, the Institute of Integrated Research, and the Institute for Liberal Arts. The program education is provided in cooperation with private corporations, the National Research and Development Agency, and top-notch overseas universities. In AY2025, the program was further developed with the launch of a new interdisciplinary graduate major, “Materials and Information Sciences.”

### Program characteristics and excellence

The program focuses on “new industry creation” and



“Multitalented individuals” empowered by this program can freely move across complex space with axes of materials science, informatics, and social services. Due to diverse training, they flourish professionally.



The program empowers students to think from a broad perspective free from a traditional classification as they can easily cross the boundaries of “materials science” and “informatics” and can move through information world.

“new field creation”, which is the foundation of new industry. We aim to create new industry by advancing from materials-based industries to next-generation industries. Financial, trading, and software industries have incorporated with information technology and shifted into areas with higher information value. In contrast, materials-based industries have yet to fully utilize high information value. A path forward is to create industries with high information value built upon materials. Currently, no education program fosters talent who can create such industries. Although double-major programs in some countries allow students to study materials science and informatics independently, opportunities for cross-disciplinary interactions among

students and faculties as well as to connect ideas from molecules to social innovation are woefully lacking. The characteristics and excellence of the program are to produce “multitalented individuals” who are unprecedented “knowledge professionals”. Knowledge professionals are materials scientists systematically educated in state-of-the-art informatics or information scientists who understand and can systematically apply state-of-the-art materials research. Not only do they recognize the connection of materials to social services, but they are also passionate about creating new industries.

## Global Pro-Active Root Technology Program



WISE Program  
Global Pro-Active  
Root Technology Program

[Program Coordinator] YAMADA Noboru (Department of Science of Technology Innovation · Professor, Nagaoka University of Technology)

[Fields of diplomas] Doctor of Engineering

Name of the program to be noted: WISE Program [Global Pro-Active Root Technology Program Course]

[URL] <https://wise.nagaokaut.ac.jp/e/wise/>



### Message from the President



**KAMADO Shigeharu**  
President, Nagaoka University of Technology

### Establishing a world-class base for applied root technology instruction

A variety of students participate in this outstanding graduate program, including those with corporate experience, those from other higher learning institutions, as well as international students. We believe that it is extremely important for students with such diverse backgrounds to actively engage with equally diverse faculty in various regions of the world in the pioneering of new academic fields. In addition, the application of “Root Technology” combining IT, power electronics, and materials science provides many solutions for new lifestyles. Numerous overseas universities, domestic and foreign enterprises, and local governments who support the idea of developing knowledge professional human resources are newly participating in the program. We look forward to your continued support.

#### Message from WISE Cooperating Institution

#### Research internship curriculum for promoting world-class international joint research



**Dr. Sebastien Vaucher**  
Swiss Federal Laboratories for Materials Science and Technology · Researcher

I feel that the students of the WISE Program understand their strengths very well and have the abilities to demonstrate them. It is because of this that we can entrust them with creative work. Switzerland and Japan have very similar mentalities for approaching engineering and other forms of craft. Switzerland is more conservative in this respect, although that is what has distinguished its industries and tradition. I look forward to our intercultural exchange that is sure to bring about innovation.

#### Voices of Graduates

#### ultra-practical education offered by both overseas universities and etc.



**OKAWA Ayahisa**  
Tohoku University (Assistant Professor)

Through the ultra-practical education provided by the WISE program at both overseas universities and companies, I gained a research approach that emphasizes “sustainability” and a methodology for closely fusing theory and practice during my time studying in Germany, and a perspective that looks ahead from research to commercialization at the consulting company. Based on these diverse experiences, I intend to link the results of my research to social change as quickly as possible and contribute to Beyond SDGs.

### Good Practice



#### Idea Development Dojo to strive and train together with corporate employees

The Idea Development Dojo opened in October 2019 as an education program for human resource development focused on producing ideas for new innovation. Its activities are carried out using the SPRIX Dome that was built thanks to the generosity of SPRIX. At the Dojo, students and young R&D personnel of companies have been working together to hone their ideas with “the eight key skills for idea development,” using these ideas to develop and carry out the productization and branding of new products with many successful results. We look forward to the participation of more companies who wish to carry forward projects with us.

### DATA

[Number of students recruited (For FY2026, number of students to be recruited)]

15 each (FY2019-FY2024), 15 (FY2025), 15 (FY2026)

[Number of people engaged in the program] 62

[Students' affiliated schools and departments]

1 graduate school, 3 departments

<Graduate School of Engineering> Science of Technology Innovation, Master's Program in Engineering (Mechanical Engineering/Electrical Electronics and Information Engineering/Information and Management Systems Engineering/

Materials Science and Bioengineering/Civil and Environmental Engineering/ Nuclear Technology/System Safety Engine), Doctoral Program in Engineering (Energy Engineering/Information Science and Control Engineering/Materials Science/Civil Engineering and Bioengineering)

[WISE Cooperating Institutions]

13 universities, 13 public research institutes, 4 local public bodies

Aalto University/Mondragon University/University of York/Bristol University/ University of Sheffield/University of Leeds/University of Deusto/Indian Institute of Technology Madras/University of Antwerp/University of Bordeaux/TH Köln-

Technology.Arts.Sciences/Friedrich-Alexander Universität Erlangen-Nürnberg, FAU/Universität Bielefeld/Swiss Federal Laboratories for Materials Science and Technology/Sankyo Tateyama, Inc./Sumitomo Electric Industries, Ltd./Nagaoka Power Electronics Co., Ltd./Unipulse Corporation/Fuji Electric Co., Ltd./SANKI ENGINEERING CO., LTD./Japan Business Create Co., Ltd./IBSystem Co., Ltd./Japan Fine Ceramics Association/Niigata Industrial Creation Organization/The Institute of Applied Energy/National Institute of Advanced Industrial Science and Technology/Niigata City/Nagaoka City/Sado City/Shibata City

[Number of program graduates (including anticipated graduates)] 5 (FY2021), 1 (FY2022), 4 (FY2023), 4 (FY2024), 13 (FY2025)

[Career paths after graduation (including anticipated paths)] 1 to universities, 22 to private enterprise, 2 to public research institute, 2 to government agency

As of November 2025

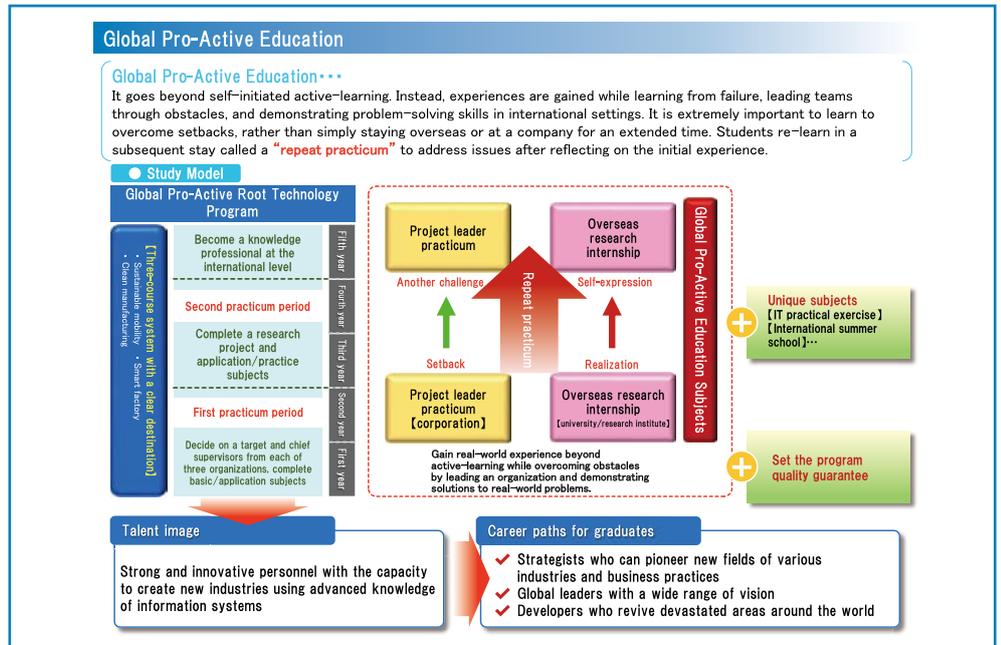
### Development of human resources for root technologies able to contributing to the realization of SDGs

Our University was appointed as a World Hub University for the United Nations Sustainable Development Goals (SDGs) Goal 9 (“Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”) of the United Nations Academic Impact program (only one institution in the world appointed for each of the 17 SDG initiatives) as a university serving as a model for innovative efforts related to the SDGs. This is a testament to the recognition that the University and its graduates are contributing to infrastructure development, innovation, and sustainable industrialization globally. Our University is the only institution selected from the East Asia region, including Japan.

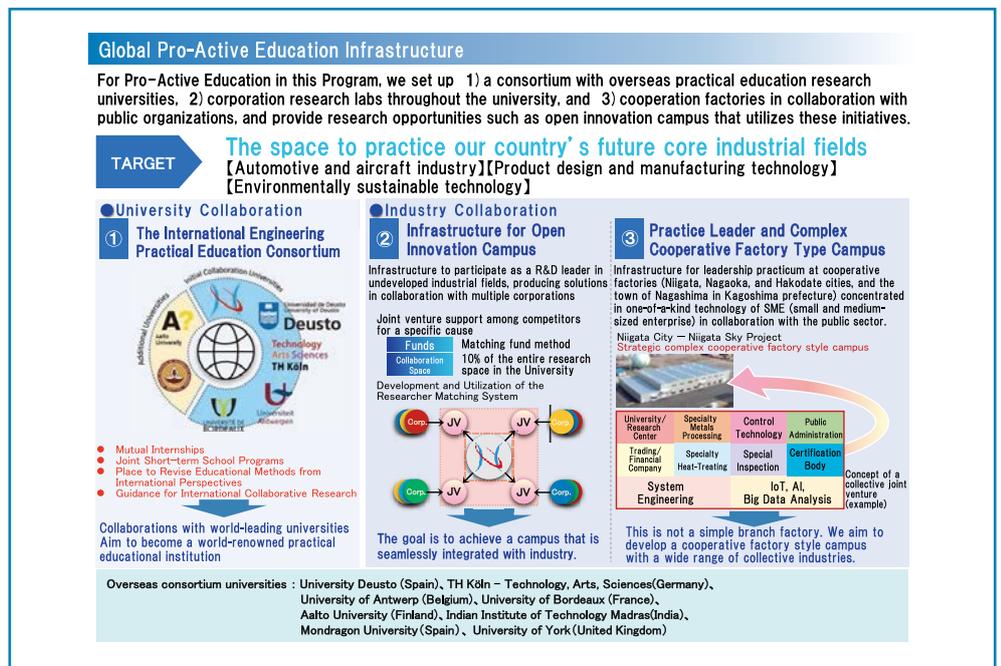
This program brings together the world's highest level of research capabilities and pioneering educational methods, to which the University has continuously made contributions. Specifically, the “Root Technology” that forms the basis of all industries and that integrates “IT,” “materials science,” and “electrical engineering” contributes to the realization of the SDGs in collaboration with domestic and overseas industries and the world's leading research facilities. This is a five-year integrated education program for doctoral candidates geared towards training knowledge professionals. In this program, the following four competencies will be honed to the “world-class level” through “Global Pro-Active Education”: 1. Ability to pioneer innovative academic fields to form the basis for a career as a doctorate-level human resource; 2. Advanced IT capabilities in AI, IoT, and data science that can continuously adapt in concrete ways without pretensions; 3. Human-driven pioneering able to open up unexplored areas while building and utilizing a diverse human resources network; 4. Design thinking and implementation capacities enabling the effective planning and proposal (production) of strategies demanded in the Society 5.0 era.

### Features of a “Global Pro-Active Education” and Establishing a Suitable Environment

Since its foundation, our University has adopted pioneering teaching methods, such as requiring on-the-job training (long-term internships) at companies in Japan and overseas for approximate half-year terms. The world's top research achievements in the fields of materials science and power engineering, as well as unique practical competencies form the source of graduates empowered to play an active role as leaders. This program demonstrates pioneering teaching methods that can only be achieved through a long-term program of five years of master's and doctoral degree-focused



Characteristics of the teaching curriculum in global pro-active education, vision for human resources to be cultivated, and the professional career path of graduates



Establishing an environment for realizing global pro-active education

instruction. That is what we refer to as “Global Pro-Active Education.” “Global Pro-Active Education” incorporates a collaborative education method (dual system) in which advanced European industry members and academia collaborate, and share experiences to foster leadership in various aspects of business and research. Students have already experienced a number of setbacks and difficulties while engaging in advanced work at their home and overseas destinations. After returning to the University, the students share their experiences and continue to work with their academic advisors and mentors to overcome these obstacles while studying during their second dispatch. This is a teaching method referred to as repetitive training, which serves

to provide the experience of re-learning what was lacking in the university environment and of tackling challenges in the field. In addition, as the human resources who will lead the next generation of Society 5.0 must constantly incorporate new IT technologies, all students enrolled in this program will build proficiency with the latest IT technologies such as AI, IoT, and data science. In order to maximize the effectiveness of such learning, we will promote the establishment of a suitable learning environment together with collaborating universities, research institutes, members of industry, and government agencies in Japan and abroad.

## Graduate Program of Transformative Chem-Bio Research



[Program Coordinator] KINOSHITA Toshinori (Professor, Institute of Transformative Bio-Molecules, Nagoya University)

[Fields of diplomas] Doctor of Science, Doctor of Engineering, Doctor of Agricultural Sciences, Doctor of Pharmaceutical Sciences

Name of the program to be noted: Graduate Program of Transformative Chem-Bio Research

[URL] <https://www.itbm.nagoya-u.ac.jp/gtr/en/>



### Message from the President



**SUGIYAMA Naoshi**  
President, Nagoya University

### Breakthrough in challenges confronting society and technology in chemistry and biology Developing researchers who will advance interdisciplinary frontiers and become future experts

The advancement of science and technology is rapidly changing the world. Achieving a breakthrough in the challenges confronting society and technology requires researchers who will not only promote existing areas of their individual studies but also daringly explore interdisciplinary frontiers and open up new horizons.

GTR intends to develop such researchers who will advance interdisciplinary frontiers and become future experts. For this purpose, GTR provides practical opportunities to help acquire genuine research power to open up interdisciplinary studies while conducting studies in different research environments and performing challenging innovative interdisciplinary research. GTR's mindset and its method of exploring interdisciplinary frontiers are spreading throughout the entire university and are closely reflected in its planning of doctoral education programs.

### Message from WISE Cooperating Institution

#### Jointly training researchers able to solve global environmental issues



**SHINOZAKI Kazuo**  
Visiting Senior Scientist (Honorary Science Advisor/Honorary Scientist), RIKEN Center for Sustainable Resource Science

Institute of Transformative Bio-Molecules (ITbM), the parent organization of Graduate Program of Transformative Chem-Bio Research (GTR), and RIKEN Center for Sustainable Resource Science (CSRS) have been holding joint workshops every year since 2015, pursuing a broad range of joint research and promoting personnel exchanges. Through our concerted efforts with GTR, CSRS intends to contribute to the production of excellent researchers who are capable of solving global environmental and resource-related problems.

### Voices of Graduates

#### Rare chance to see other areas of study to propose meaningful studies



**KAJIWARA Keiji**  
Future Creation Division, Advanced Core Technology Center, Technology Development Headquarters, Konica Minolta Inc.

I joined GTR as I thought hands-on experience in other fields would make my own studies more interesting and useful.

The greatest advantage of joining GTR was that I could experience the importance of learning about the challenges and cutting-edge technologies in other disciplines which would not be possible if I stayed in my lab. As I now work for a company, what I learned in GTR is foundational to my mindset of "projects of value to both company and society."

### Good Practice



#### Original and Creative Planning on the Part of GTR Students Make the Program Even More Attractive

GTR screens and supports the events which students plan and execute themselves. The events conducted thus far include exchange programs among the students under COVID-19 pandemic conditions, lectures by students on different disciplines, projects to promote communication with foreign students, and tours of laboratories of different disciplines. In addition, some of the ideas for lectures by the Graduate School and the GTR Program that qualify for credits, have been initiated by students. The planning conducted by graduate students, therefore, embodies the spirit of the GTR Program, which intends to create an interdisciplinary frontier, and has become an excellent opportunity for creating and fostering cohesive and collaborative networks among the students.

### DATA

[Number of students recruited (For FY2026, number of students to be recruited)]

60 (FY2018), 30 each (FY2019-FY2026)

[Number of people engaged in the program] 58

[Students' affiliated schools and departments]

4 graduate schools, 12 departments

(After restructuring of schools in April, 2022 : 4 graduate schools, 11 departments)

<Graduate School of Science> Material Science (Chemistry)(After

restructuring of schools in April, 2022 : Natural Science (Group of Chemistry), Biological Science (After restructuring of schools in April, 2022 : Natural Science (Group of Biology)), International Collaborative Programme in Science between the University of Edinburgh and Nagoya University  
<Graduate School of Engineering> Molecular and Macromolecular Chemistry, Materials Chemistry, Biomolecular Engineering  
<Graduate School of Bioagricultural Sciences> Forest and Environmental Resources Sciences, Plant Production Sciences, Animal Sciences, Applied Biosciences, International Collaborative Program in Agricultural Sciences

between Nagoya University and the University of Western Australia  
<Graduate School of Pharmaceutical Sciences> Basic Medicinal Sciences

[WISE Cooperating Institutions]

3 public research institutes, 1 university, 2 private enterprises, 1 organization  
Institute for Molecular Science, National Institutes of Natural Science/  
National Institute for Basic Biology, National Institutes of Natural Science/the  
Graduate University for Advanced Studies/Institute of Physical and Chemical  
Research/Kaneka Co./Konica Minolta, Inc./ITbM-GTR consortium

[Number of program graduates (including anticipated graduates)] 24 (FY 2021), 23 (FY 2022), 18 (FY 2023), 22 (FY 2024), 21 (FY 2025)

[Career paths after graduation (including anticipated paths)] 30 to universities, 57 to private enterprises, 8 to public research institutes, 1 to government agency, 12 to others

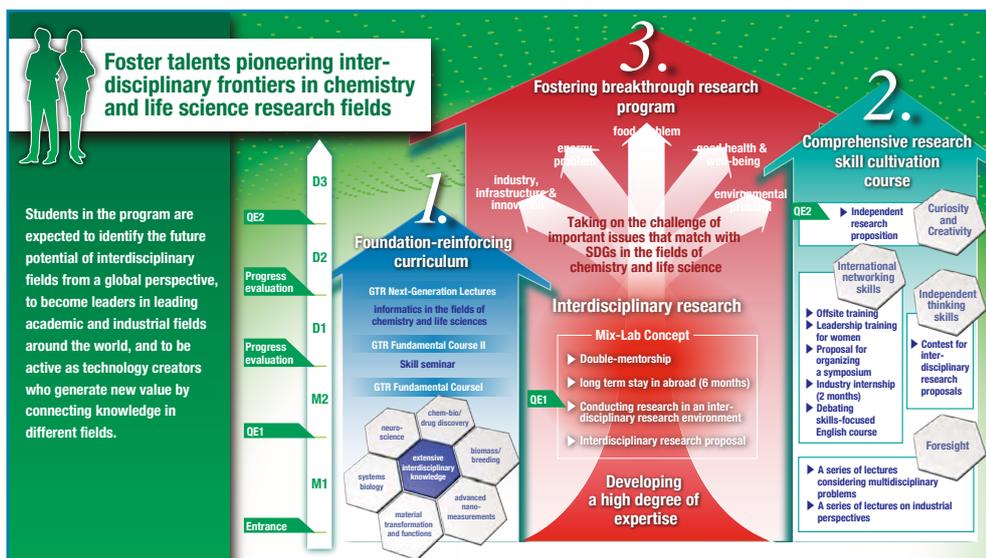
As of November 2025

## Beyond interdisciplinary frontiers to achieve breakthroughs

To achieve sustainable development of society, the human race must solve many challenges, including environmental and energy problems, stable food production, the development of materials leading to industrial and technological innovations, and life science research that contributes to the promotion of health. Accordingly, the roles of chemistry and life science research are expected to increase in importance. To make breakthroughs in these challenges confronting science and society, we need to pioneer interdisciplinary research fields that will open new horizons. To overcome the walls between conventional disciplines that stand in the way of such efforts, an excellent research power to break through is essential. The research power to break through consists of two elements: the power to overcome and the power to connect. The former involves a frontier spirit, power of execution, and confidence that can be developed only by taking the initiative in carrying out attractive and high-quality research. The latter involves connecting different disciplines, leading to the creation of innovative ideas for solving problems through free and open-minded discussions. The Graduate Program of Transformative Chem-Bio Research (GTR) intends to cultivate this research power to break through and train researchers who will advance interdisciplinary frontiers and create the knowledge of the future. Each year, GTR trains around 30 researchers who have acquired an excellent research power to break through and who challenge themselves to create new knowledge that will aid in the development of society.

## The “Mixed Lab” Concept offers optimal opportunities

GTR consists of three pillars of programs and courses. A high degree of expertise is required for conducting high-quality cutting-edge research, and a broad range of knowledge must be acquired with curiosity to launch into different fields of study. To achieve this, GTR provides a curriculum aimed at developing foundational strengths, covering a wide range of disciplines including material transformation/functions, advanced nano-measurement, chem-bio/drug discovery, systems life science, neuroscience, and biomass/breeding. GTR also offers a course for cultivating comprehensive research power. With a variety of activity plans, the course develops foresight, inventiveness, research creativity, ability to create personal connections and human



Three powers fostered by GTR: basic knowledge across chemistry and life science, comprehensive research power to advance, and research power to break through only acquired by active involvement in interdisciplinary research.



The research power to break through via the mixed lab concept involves four steps: early proposal of interdisciplinary study, research in a different environment, working in foreign organizations, and receiving guidance from two mentors.

networks, and an international mindset. The last and the most important of the three is the program for developing research power to break through.

The Institute of Transformative Bio-Molecules (ITbM), the parent organization of GTR, has produced many prominent findings that could have materialized only through interdisciplinary research in chemistry and biology. The key to success lies in the mixed lab concept, in which researchers of different disciplines work together to generate innovative ideas through daily discussions, and then collaborate to realize these ideas. The mixed lab, which allows world-class researchers to enthusiastically work on interdisciplinary studies, offers an optimal opportunity for researchers in training. The GTR program further expanded the mixed lab concept to develop research power to break through. This program

encourages students to create a proposal for interdisciplinary research at an early stage so that they establish a strong mindset for crossing boundaries. They are then required to do a joint study in an interdisciplinary environment (in multiple laboratories) with a foreign collaborating institution or a company. At the final stage, students complete their doctoral dissertation under the guidance of two mentors. Thus, GTR trains capable researchers who will play a pivotal role in the next generation, making full use of the know-how accumulated in ITbM in its realization of the mixed lab concept.

## DII (Deployer-Innovator-Investigator) Collaborative Graduate Program for Accelerating Innovation in Future Electronics



**[Program Coordinator]** AMANO Hiroshi (Professor, Director of the Institute of Materials and Systems for Sustainability Center for Integrated Research of Future Electronics, Nagoya University)  
**[Fields of diplomas]** Doctor of Engineering  
 Name of the program to be noted: DII Collaborative Graduate Program for Accelerating Innovation in Future Electronics  
**[URL]** <https://www.dii.engg.nagoya-u.ac.jp/en/>



### Message from the President



**SUGIYAMA Naoshi**  
President, Nagoya University

### Fostering of diverse doctoral human resources who connect science and technology to innovation

Making effective use of scientific discoveries in society is extremely difficult and takes time. It is also difficult to achieve on your own. To overcome these challenges, the DII (Deployer-Innovator-Investigator) program fosters leaders in the field of electronics from three types of perspective: human resources who explore challenges in this field to promote research, human resources who translate research results into specific products, and human resources who create social value and start businesses. To this end, we have developed a system of collaboration with industry, national research institutes, overseas research institutes, and universities and also launched the Doctoral Education Consortium. We will make every effort to promote the project with the hope that it will produce outstanding human resources needed by the world.

#### Message from WISE Cooperating Institution

#### The importance and challenges of developing leaders to support Japanese manufacturing and creating things

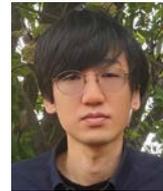


**YAMAZAKI Satoshi**  
FURUKAWA ELECTRIC CO.,LTD.

Development times in cutting-edge fields are getting shorter and shorter. Successful development requires leaders with determination and a broad perspective, but they are difficult to train. In the DII Collaborative Project, students acquire the qualities of a leader by understanding the purpose of the project, fulfilling their own roles, and having repeated dialogues to lead the team to success. This is expected to promote the development of human resources to enhance international competitiveness.

#### Voices of Graduates

#### Learning the Path to Social Implementation through Practice



**NATSUME Hiroki**  
Global Research Institute of Nuclear Energy, Tokai University (Specially-appointed junior associate professor)

I joined this program to systematically learn how technologies from research are implemented in society. Through hands-on experiences—such as identifying social needs, prototyping, conducting surveys, and pitching ideas—I gained a clearer picture of how research connects to real-world use. In particular, interacting with experts and students from diverse fields broadened my perspective and inspired insights I wouldn't have discovered within my own discipline. As a result, my personal growth and potential expanded significantly.

### Good Practice



#### DII Collaborative Project with external collaborators and cooperating institutions

In the “DII Collaborative Project,” which takes place over a long time around the 2nd year of the doctoral course, students who are aiming to acquire each DII skill make teams and challenge to create products to solve social issues. In this collaboration with students, faculties, and society members of not only DII program but also outside the program, and with advice from mentors in industry and national institutes, team members share the roles of DII and work on market research, technology development, product creation, and social implementation. They have acquired knowledge and skills for the creation of future electronics, and have achieved prizes in off-campus business plan contests and obtain external funds by the students themselves.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

15 (FY2018), 20 (FY2019), 20 (FY2020), 20 (FY2021), 20 (FY2022), 20 (FY2023), 20 (FY2024), 20 (FY2025), 10 (FY2026)

**[Number of people engaged in the program]** 100

**[Students' affiliated schools and departments]**

1 graduate school, 13 departments

<Graduate School of Engineering>Electronics, Electrical Engineering, Information and Communication Engineering, Materials Physics, Applied

Physics, Materials Process Engineering, Materials Design Innovation Engineering, Chemical System Engineering,

Mechanical Systems Engineering, Aerospace Engineering, Micro-Nano Mechanical Science and Engineering, Energy Engineering, Applied Energy

**[WISE Cooperating Institutions]**

3 universities, 3 overseas research institutes, 3 domestic research institutes, 16 companies

Innovation for High Performance Micro-electronics/Interuniversity Microelectronics Center/Office ATOQS/Japan Aerospace Exploration Agency/

National Institute for Materials Science/National Institute of Advanced Industrial Science and Technology/KAPION Inc./DENSO CORPORATION/

TOSHIBA CORPORATION/TOYOTA CENTRAL R&D LABS., INC./Hitachi, Ltd. Central Research Laboratory/FUJITSU LABORATORIES LTD./MiraiProject Corporation/Sumitomo Electric Industries, Ltd./National University of

Singapore/Tokyo Electron Ltd./TOYODA GOSEI CO., LTD./Nissan Motor Co., Ltd./Furukawa Electric Co., Ltd./Mitsubishi Electric Corporation/Nanjing University/Japan Venture Capital Association/NC State University/

Forschungszentrum Jülich/MIRISE Technologies Corporation

**[Number of program graduates (including anticipated graduates)]** 7 (FY 2022),7(FY 2023),10(FY 2024),6(FY 2025)

**[Career paths after graduation (including anticipated paths)]** 9 to universities, 16 to private enterprises, 3 to public research institute, 1 to start-up business, 1 to others

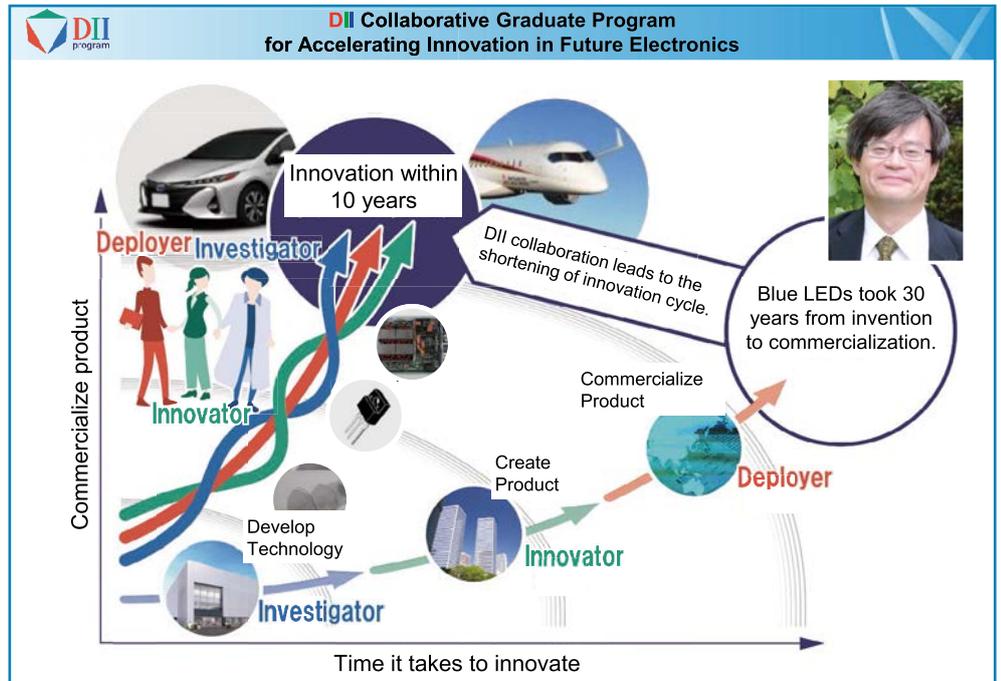
As of November 2025

## Accelerating product innovation from 30 years to 10 years

In this program, on the basis of his experience that it took 30 years from the start of research and development on gallium nitride crystal to practical use of blue LEDs, Prof. Hiroshi Amano (Program Coordinator) fosters three types of human resources who will play different roles in the rapid and continuous creation of product innovation in future electronics. Since the key to accelerating innovation is for the three types of human resources, we named this “DII collaboration,” with DII standing for Deployer, Innovator, and Investigator. Based on this idea (DII), the program offers a curriculum to nurture excellent human resources according to the vision of the future imagined by each student while setting improvement of abilities in one’s field of expertise and acquisition of experience and the ability to work collaboratively in teams with different types of human resources. This program accepts students with a keen interest in manufacturing and products. More specifically, in addition to students with the basic academic skills necessary to acquire high levels of expertise and comprehensive capabilities, as well as the motivation to explore the frontiers of engineering and create new value, the following four items are added as qualifications for participating in the program: (1) a higher level of basic academic capabilities; (2) strong motivation and enthusiasm to explore and practice leading-edge engineering and disseminate it in society; (3) the ability to discuss, disseminate information and practice in the international arena; and (4) the initiative to take proactive and independent actions.

## Close guidance by industry-government-academic collaboration

In this program, researchers and engineers from companies, national research institutes and other institutions serve as mentors and provide students with direct guidance over a long period of time. All students participate in the short-term overseas internship immediately after the start of the program. In the second half of the second year, each student selects courses from among those aimed at each Deployer, Innovator, and Investigator type and works to acquire necessary skills. In the DII basic subjects, the environment for e-Learning will be enhanced to study anytime and anywhere. English-language education and transferable skills training will also be provided to improve international communication skills. In the Workshop for Human Society Problem Challenge, leading



To complete the acceleration of product innovation, which used to take 30 years, within 10 years through collaboration between the three types of human resources (DII)

	Deployer	Innovator	Investigator
Completion Judgment			
Fifth year	Try for Entrepreneurship Competitions	Carry out collaborative research/development with businesses	Conduct collaborative research with international research institutions
QE	DII Collaborative Project		
Fourth year	Present business plans	Present solutions to technical challenges confronting businesses	Present engineering challenges for the sake of technological developments
Third year	Multi-agency internships	Long-term internship at a company	Overseas research internship
QE	Workshop for Human Society Problems; Practical Training in Product Development; and DII basic and specialized courses		
Second year	Develop and present business plans	Develop and present product development plans	Develop and present proposals for international collaborative research
First year	Acquire an international and enterprising mindset through a short-term seminar & workshop		

Curriculum to acquire reliable basic skills to conduct the DII Collaborative Project and improve skills in fields of expertise according to the three types

figures in a variety of industries are invited to give lectures to allow students to learn about the various challenges related to the creation of future electronics as well as ideas and technologies to solve them.

In Long-term Internship, students study in host organizations for six months. Deployer course students visit multiple organizations, such as venture companies, to establish a variety of personal relationships and develop their international perspectives, foresight, and planning abilities. The Innovator course offers a long-term internship at a company where students learn about the key points for completing product development and aim to launch collaborative research.

Investigator course students take up long-term residence and conduct collaborative research at overseas institutes. They deepen their studies, develop the foundation for international collaborative research, and write international co-authored papers.

The DII Collaborative Project in the fourth year is the program’s most ingenious initiative and aims to enable students to experience DII collaboration and understand the importance of cooperation. Teams of different types of DII students are formed based on the abilities, knowledge and experience they obtained through their internships, and they work together to solve challenges for future electronics in the real world.

## Innovation of Advanced Photonic and Electronic Devices



京都大学卓越大学院プログラム  
Innovation of Advanced Photonic and Electronic Devices  
先端光・電子デバイス創成学

**[Program Coordinator]** KIMOTO Tsunenobu (Professor Graduate School of Engineering, Kyoto University)  
**[Fields of diplomas]** Engineering, Science, Informatics  
Name of the program to be noted: Doctor (Engineering), Doctor (Science), Doctor (Informatics)  
(Innovation of Advanced Photonic and Electronic Devices)  
**[URL]** <http://www.e-takutsu.ceppings.kyoto-u.ac.jp/en/>



### Message from the President



**MINATO Nagahiro**  
President, Kyoto University

**Through the WISE Program, Kyoto University seeks to cultivate advanced “knowledge professionals” who will play key roles in industry, academia, and government.**

In 2021, Kyoto University established the Division of Graduate Studies to enhance its liberal arts and general education courses, and centrally manage its diverse graduate degree programs. The new division promotes collaboration and cooperation among graduate schools in diverse aspects of education and research.

It will ensure that the university continues to provide unique high-quality programs under the government’s Doctoral Program for World-leading Innovative & Smart Education (WISE Program). WISE programs are provided in close cooperation with leading companies and world-class research institutes in Japan and leading universities around the world with the aim of cultivating advanced “knowledge professionals” and promoting the reform of the university’s graduate schools.

### Message from WISE Cooperating Institution

**Contributing to human resource development at the WISE Program “Innovation of Advanced Photonic and Electronic Devices” with External Stimulation**



**OHSHIMA Takeshi**  
Director, Quantum Functional Creation Research Center / National Institutes for Quantum Science and Technology

I am aware that the development of professionals of knowledge is steadily conducted by the multidisciplinary education and research beyond the framework of research fields, institutions and countries. As a researcher belonging to a collaborative institution that conducts research and development from basics to applications in the fields such as quantum beams, nuclear fusion, materials science, life science, and medicine, we would like to provide students with opportunities to gain various experiences, giving a good stimulus.

### Voices of Graduates

**Precious experience working with researchers from different fields (66 / 72 characters)**



**HARA Masahiro**  
Assistant Professor, Graduate School of Engineering, The University of Osaka

This program offers many opportunities to interact with researchers both inside and outside of the university, working in different research fields.

During the Field Practice program, I was involved in a research project that was different from my Ph.D. study and was able to gain an extended perspective and human networks.

I will make use of the experiences in this program so that I can devise and proceed with a unique research subject that can contribute to real society.

### Good Practice



**“e-Wise Cafe”, a place for students to interact with other research fields or faculty members, which is planned and operated by the students themselves.**

Since 2019, we have been holding the “e-Wise Cafe” as a place to promote the interaction among students from different fields as well as faculty members. The e-Wise Cafe is planned,

operated, and lectured by the students themselves. In the lecture, they introduce their research contents to other students in different research fields in an easy-to-understand manner.

In addition, they introduce the hardships and ingenuity of their own studies, failure stories, and personal life or their hobbies. After the lecture, they have a round-table conference to further interact with each other.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

FY2019-FY2026 Master 15, Doctor 5 (each year)

**[Number of people engaged in the program]** 38

**[Students’ affiliated schools and departments]**

3 graduate schools, 4 departments

<Graduate School of Engineering>Electronic Science and Engineering, Electrical Engineering

<Graduate School of Science>Physics and Astronomy

<Graduate School of Informatics>Informatics

**[WISE Cooperating Institutions]**

6 universities, 2 organizations, 2 public research institutes, 4 private enterprises

University of Cambridge / Humboldt University of Berlin / ETH Zurich / Dresden University of Technology / Nanjing University / Sungkyunkwan University / National Institute for

Materials Science / National Institutes for Quantum and Radiological Science and Technology / Central Research Institute of Electric Power Industry / National Institute of Advanced Industrial Science and Technology / Nidec Corporation / Mitsubishi Electric Corporation / Shimadzu Corporation / Sumitomo Electric Industries, Ltd.

**[Number of program graduates (including anticipated graduates)]** 2 (FY 2020), 13 (FY 2021), 9 (FY 2022), 16 (FY 2023), 16 (FY 2024), 10 (FY 2025)

**[Career paths after graduation (including anticipated paths)]** 21 to universities, 30 to private enterprise, 7 to public research institute, 8 to others

As of October 2025

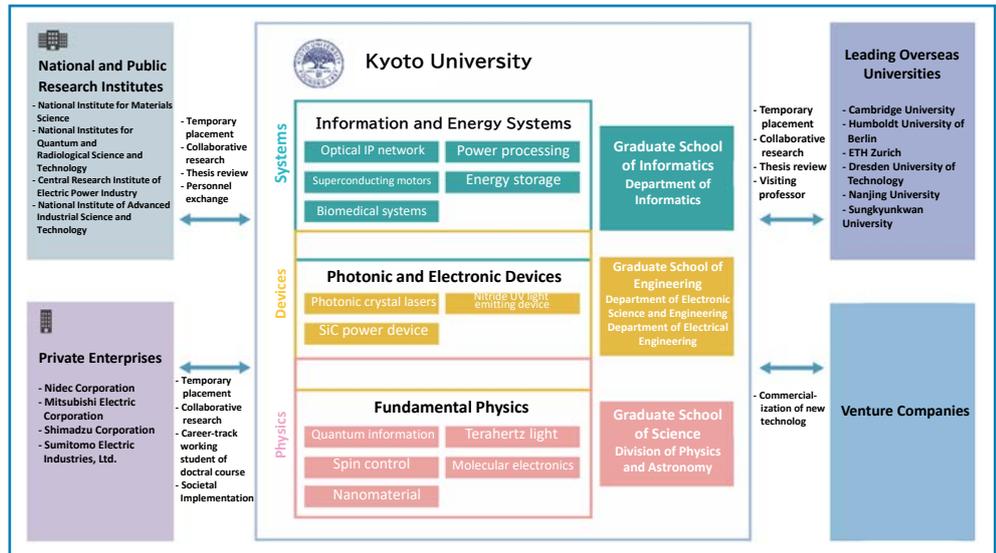
## Objective

Human society is currently entering a period of significant transformations focused on electronics such as the IoT (Internet of Things) revolution, wearable information devices, self-driving and electric cars, and smart grid. In such a society, many high-performance photonic and electronic devices function as the core of the hardware while being integrated, and require further performance enhancement and creation of new functions in the future. On the other hand, the explosive expansion of knowledge, due to advances in science and technology in recent years, has given rise to the problem of a lack of comprehensive outlook as a significant subdivision of specialized fields was developed. In particular, it is considered that specialized education in a specific discipline is not enough to solve issues of a wide range of fields of human society such as advanced information-oriented society, environment, energy, and artificial intelligence. It is essential to nurture talents who can make right decisions while looking at everything, from fundamental theories to system application, with a holistic perspective, resolve challenging issues, and lead the critical fields in the future.

At Kyoto University, we have our original scientific concepts and key technologies that should be called “Originated in Our University”. This WISE program promotes combined and vertically integrated education focused on the field of photonic and electronic devices, extending from deepening the understanding of fundamental physics and theory to the management and application of systems and information. Also, we collaborate with private enterprises representing Japan around the world, national and public research institutes with the highest level of research capabilities, and top-class and leading overseas universities. Moreover we systematically implement education and quality assurance of a global standard and raise world-class professionals of knowledge who create “Advanced Photonic and Electronic Devices” through an integrated 5-year doctoral degree program.

## Nurture Talent

With the common philosophy of “Challenging the physical limits and developing an information-oriented and energy-saving society”, the WISE Program (Doctoral Program for World-leading Innovative & Smart Education) aims at nurturing international pioneers who



Scheme of Innovation of Advanced Photonic and Electronic Devices

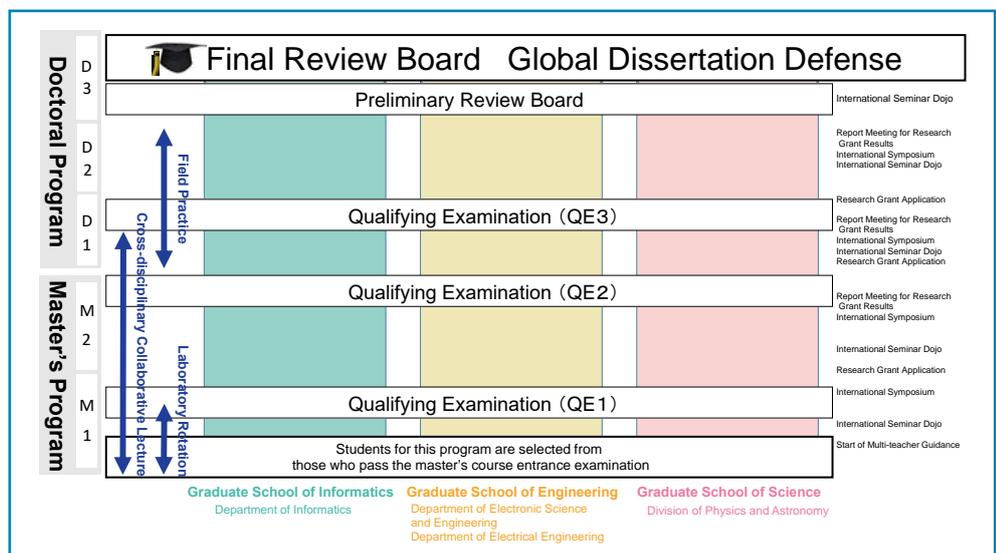


Image of Master's / Doctoral Education and Degree Examination

can lead the field of advanced photonic and electronic devices as well as related academic fields, specifically, those with the following abilities.

1. Originality
2. Holistic perspective
3. Challenge ability
4. International mindedness
5. Self-dependence

## Transdisciplinary Program for Biomedical Entrepreneurship and Innovation



大阪大学 卓越大学院プログラム  
生命医科学の社会実装を推進する卓越人材の涵養  
Transdisciplinary Program for Biomedical Entrepreneurship and Innovation

**[Program Coordinator]** MORII Eiichi (Professor, Graduate School of Medicine, The University of Osaka)  
**[Fields of diplomas]** Doctorate (Medicine), Doctorate (Health Sciences), Doctorate (Nursing), Doctorate (Dentistry), Doctorate (Pharmaceutical Sciences), Doctorate (Pharmacy), Doctorate (Frontier Biosciences), Doctorate (Science), Doctorate (Engineering)  
Name of the program to be noted: Completion of Transdisciplinary Program for Biomedical Entrepreneurship and Innovation  
**[URL]** <https://www.med.osaka-u.ac.jp/pub/bei/en/>



### Message from the President



**KUMANOGO Atsushi**  
President, The University of Osaka

### Offering a new program to train doctoral students with practical research and entrepreneurial (social implementation) skills to drive innovation in medical, dental, pharmaceutical, and life sciences

The University of Osaka aims to cultivate individuals capable of tackling various social challenges through co-creation with society. Our unique program offers a comprehensive curriculum that fosters students' practical research skills to achieve internationally superior research results in the fields of medicine, dentistry, pharmacy, and life sciences, as well as entrepreneurial (social implementation) skills to effectively translate their research results for the benefit of society and to make innovations. Students are improving themselves through healthy academic competition to become PhD graduates who will contribute to the prosperity of our society, by such means as improving the quality of life (QOL) and eradicating the threat of various diseases.

We hope that this program will produce globally active opinion leaders.

### Message from WISE Cooperating Institution

#### Core human resources through the transformation of healthcare industry



**SHIMIZU Takeshi**  
EY Strategy and Consulting Co., Ltd., Health & Life Sciences, Partner

The healthcare industry is at a transformational stage and has new paradigms such as preventive, regenerative medicine, and digital treatment as well as uses new diagnostics, treatments, and compound-derived drugs. This program represents a valuable opportunity to develop a complex mindset for dealing with situations in which drastic changes in success models could occur, and for dealing with changes caused by financial pressure such as an increase in the elderly population or a higher cost of drug development.

### Voices of Graduates

#### The WISE Program has broadened my horizons



**ISONO Moeko**  
Assistant Professor, Biomedical Ethics and Public Policy, Graduate School of Medicine, the University of Osaka

My research concerns the issue of delayed diagnosis in patients with rare diseases. I participated in the WISE Program because I want to think about what I could do for patients who are currently undiagnosed. The positive aspects of the program were as follows: I was able to hone my presentation skills through both classroom learning and practical application; I had the opportunity to interact with other PhD students; and above all, I gained the opportunity to seriously consider setting up a venture company as a way of implementing the results of my research as my personal option.

### Good Practice

#### Familiarization with sites participating in societal implementation of biomedical science



Students visit companies and laboratories that foster societal implementation of biomedical science research findings, gaining workplace experience. While deepening their understanding of how companies are responding to society's unmet needs, and learning about open innovation and the corporate research environment and mindset, students will discuss their own research with corporate researchers, fostering connections between industry and academia. Students visit the National Institute of Health Sciences (photograph on the left), which is at the cutting edge of regulatory science, to gain insights into current research and development focused on scientific measures aimed at ensuring pharmaceutical safety and efficacy, and to learn how this research directly contributes to improving people's living conditions.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

15 (FY2018), 30 each (FY2019-FY2024), 15 (FY2025), 10 (FY2026)

**[Number of people engaged in the program]** 109

**[Students' affiliated schools and departments]**

4 graduate schools, 6 departments

<Graduate School of Medicine> Medicine, Health Sciences

<Graduate School of Dentistry> Oral Science

<Graduate School of Pharmaceutical Sciences> Medical Pharmacy, Advanced Pharmaco-Science

<Graduate School of Frontier Biosciences> Frontier Biosciences

**[WISE Cooperating Institutions]**

14 companies, 1 independent administrative agency, 1 national institute, 1 national research and development agency

Pfizer Inc./ Novartis Pharma K.K./ Johnson & Johnson

Innovation/ Eli Lilly Japan K.K./ Chugai Pharmaceutical Co., Ltd./ Otsuka Pharmaceutical Co., Ltd./ Shionogi & Co., Ltd./ Daiichi Sankyo Company, Limited/ Mitsubishi Tanabe Pharma Corporation/ SYSMEX CORPORATION/ Takara Bio Inc./ Quantum Operation, Inc./ Cytiva/ EY Strategy and Consulting Co., Ltd./ Pharmaceuticals and Medical Devices Agency/ National Institute of Health Sciences/ National Institutes of Biomedical Innovation, Health and Nutrition

**[Number of program graduates (including anticipated graduates)]** 2 (FY 2022), 15 each (FY 2023-FY 2024), 27 (Expected Completion in FY 2025)

**[Career paths after graduation (including anticipated paths)]** FY 2022: 1 to universities, 1 to private enterprises FY 2023: 6 to universities, 5 to private enterprises, 1 to public research institute, 3 to others FY 2024: 2 to universities, 4 to private enterprises, 6 to public research institute, 3 to others FY 2025: 1 to universities, 1 to private enterprises, 1 to public research institute, other prospective graduates' career paths are undecided as of October 2025

## Professionals with research & entrepreneurial skills

Japanese biomedical research, despite producing various original and internationally superior research findings, is lagging behind that of other countries in translating the results of basic research for application to the society. At the University of Osaka, we have been developing doctorally qualified human resources with practical research skills to produce internationally superior research results and oversee biomedical science, as well as entrepreneurial skills to implement the research results in society. Such human resources will be the experts in knowledge that are needed in this society.

Students develop their practical research skills through discussion with our outstanding researchers regarding the techniques to overcome scientific challenges. Moreover, these discussions regarding the challenges they face in student-centered research, which is an education system unique to our graduate school, strengthens their practical research skills. In addition, students develop an ability to examine their research by interacting with researchers working in fields different from their own, making them aware not only of advanced scientific expertise but also of the uniqueness of their own research.

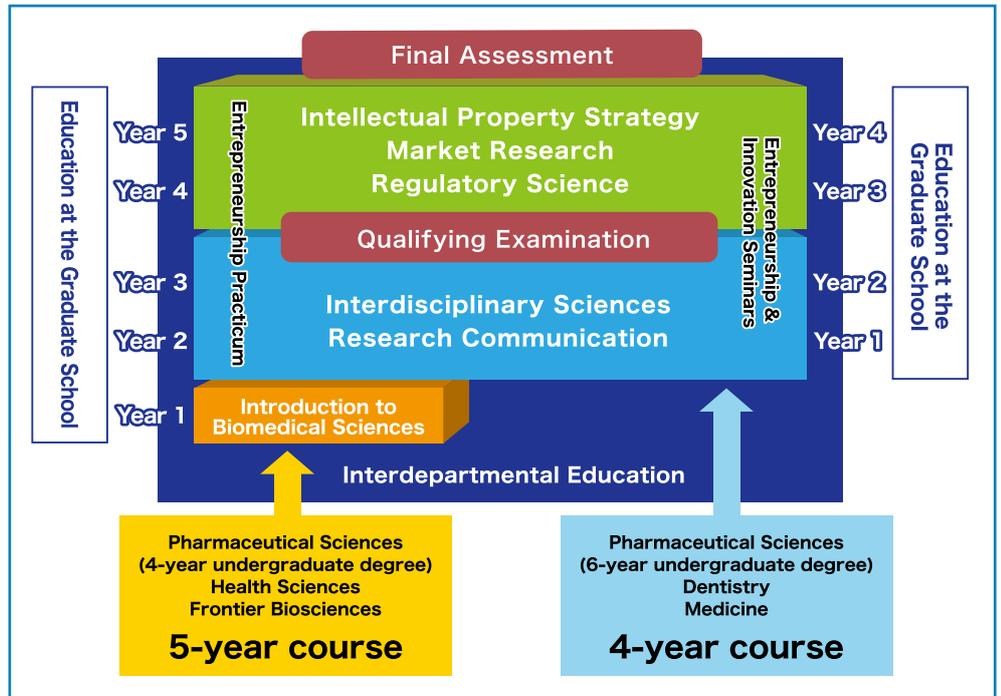
To develop their entrepreneurial skills, we offer lectures to provide students with detailed knowledge about the market and needs analysis, intellectual property strategy, and regulatory science, which is later put into practice by students. Furthermore, by visiting the companies that participate in social implementation of research findings, students cultivate a bold attitude that involves taking high risks and learn social implementation through their experience.

Quality Assurance of the Degree

At the end of the 3rd year of the 5-year program (the 2nd year of the 4-year program), students will take the Qualifying Examination (QE). In the QE, practical research skills acquired through practice will be assessed by examining originality and international competence in research that will lead to social implementation. At the end of the program, students will take the Final Assessment. In the assessment, entrepreneurial skills will be assessed. Students present own research for its implementation to society and its problem-solving plan. In addition, students defend their doctoral thesis at the graduate school of their affiliation.

## Academia-industry-government network

To foster “experts in knowledge” who translate research results for application in the society based on their ability to investigate biomedical science, we must work with other graduate schools and introduce education that is linked to society, in addition to offering the conventional



Students receive training for “practical research skills” and “entrepreneurial skills” in addition to the conventional education received in graduate school.

## A global academia-industry-government network

<p><b>Academia</b></p> <p>The University of Osaka Graduate School of : Medicine/ Dentistry/ Pharmaceutical Sciences/ Frontier Biosciences</p> <p>Research Institute for Microbial Diseases Immunology Frontier Research Center The University of Osaka Hospitals</p>	<p><b>Industry</b></p> <p>Pfizer Johnson &amp; Johnson Innovation Eli Lilly Japan Chugai Pharmaceutical Otsuka Pharmaceutical Shionogi Pharmaceutical Daiichi Sankyo Mitsubishi Tanabe Pharma Sysmex Takara Bio Quantum Operation Cytiva</p>
<p><b>Government</b></p> <p>Pharmaceuticals and Medical Devices Agency National Institute of Health Sciences National Institutes of Biomedical Innovation, Health and Nutrition</p>	

We promote an education system in which industry, government, and academia together develop qualified doctoral human resources possessing both practical research skills and entrepreneurial skills.

specialized education provided in graduate schools.

Therefore, our program promotes education through a global academia-industry-government network.

The University of Osaka has many scientists who lead cutting-edge research and produce internationally outstanding research results in areas such as immunology and autophagy. This provides students with an environment in which their practical research skills are strengthened through active cross-departmental research and education. In partnership with the Graduate School of Medicine, Dentistry, and Life Sciences,

Research Institute for Microbial Diseases, Immunology Frontier Research Center, Osaka University Hospital, and Dental Hospital, we encourage students to develop their “practical research skills,” which is the ability to consider biomedical science and perform basic research. Furthermore, Osaka Prefecture, PMDA, National Institute of Health Sciences, National Institute of Biomedical Innovation, Health and Nutrition, and domestic and overseas large pharmaceutical companies participate in our education activities, providing students with various opportunities to develop their “entrepreneurial skills”.

## The Frontier Development Program for Genome Editing



The Frontier Development Program  
for Genome Editing

**[Program Coordinator]** YAMAMOTO Takashi (Professor, Graduate School of Integrated Sciences for Life, Hiroshima University)  
**[Fields of diplomas]** Doctor of Philosophy in Science, Doctor of Philosophy in Engineering, Doctor of Philosophy in Agriculture, Doctor of Philosophy, Doctor of Philosophy in Medical Science, Doctor of Philosophy in Dental Science, Doctor of Philosophy in Pharmaceutical Science  
 Name of the program to be noted: The Frontier Development Program for Genome Editing  
**[URL]** <https://genome.hiroshima-u.ac.jp/en/index.html>



### Message from the President



**OCHI Mitsuo**  
President of Hiroshima University

### Welcome to Hiroshima University: 'The Frontier Development Program for Genome Editing' on the theme of 'Developing a Future Society with Genome Editing'

Genome editing is drawing attention worldwide as it is a biotechnology capable of modifying genomic information of various organisms by using artificial DNA-cutting enzymes; it is thought to bring a revolution to anything from selective breeding to medical applications.

Coupled with some of the top-class researchers in Japan in the field of genome editing, Hiroshima University has been promoting various projects as it intends to become one of the leading institutions in Japan for the education of genome editing. While making sure to take a reasonable care for implementing genome editing research in terms of clearing its safety and ethical issues, the program above focuses on developing researchers who will lead the future of genome editing research in the world with a view to successfully designing their career path. The university is hoping to attract well-motivated students who are capable of creating new industries that can unlock world's future.

### Message from WISE Cooperating Institution

#### Expecting Improved Production Efficiency in Microalgae Oils and Fats



**YAMAMOTO Toshihide**  
General Manager, Technical Research Center, Mazda Motor Corporation

To achieve carbon neutrality in the automotive sector by 2050, Mazda believes that it is essential to combine vehicles with internal combustion engines, including hybrid vehicles, with liquid fuels produced from microalgae (biomass) in line with its multi-solution strategy. For this reason, we would like to expect for the technologies that Hiroshima University and Institute of Science Tokyo are working on to improve production efficiency of microalgae oil and fat, including genome editing research.

### Voices of Graduates

#### Expanding my research scope, which leads to international opportunities.



**ICHIKAWA Kennosuke**  
The Roslin Institute, University of Edinburgh/ Postdoctoral Research Associate

I recognized that I could systematically acquire cutting-edge knowledge in genome editing and bioinformatics technologies, which motivated me to participate in this program. As I progressed in my research on avian reproductive biology and immunology, my desire to deepen my expertise grew stronger. After earning my doctorate, I came to the UK as a JSPS Overseas Research Fellowship. Currently, I am conducting research related to avian genome editing at the Roslin Institute, University of Edinburgh.

### Good Practice



#### Offering Diverse Opportunities for Interaction to Broaden Student Networks

With the goal of promoting information sharing, broadening knowledge and perspectives, and fostering personal and professional connections among students, faculty and staff, and partner companies, we hold approximately five networking events each year.

Each event features unique programs such as online exchanges between students and faculty, talks by alumni, a three-university exchange with Kanazawa University and the University of Tsukuba, in-person networking sessions, and seminars by external professionals who serve as role models.

Participants have shared positive feedback such as, "I was inspired by the opportunity to meet people I wouldn't normally encounter." Through these activities, we aim to foster the development of diverse networks that support students' growth, collaboration, and new opportunities for learning.

### D A T A

**[Number of students recruited (For FY2026, number of students to be recruited)]**

11 each (FY2018-FY2026)

**[Number of people engaged in the program]** 56

**[Students' affiliated schools and departments]**

2 graduate schools, 2 departments

<Graduate School of Integrated Sciences for Life>

Integrated Sciences for Life

<Graduate School of Biomedical and Health Sciences>

Biomedical Sciences

**[WISE Cooperating Institutions]**

3 universities, 1 company

Center for iPS Cell Research and Application, Kyoto

University/ Graduate School of Technology, Industrial and

Social Sciences, Tokushima University/ Department of

Molecular and Cellular Biology, Harvard University/

Technical Research Center, Mazda Motor Corporation

**[Number of program graduates (including anticipated graduates)]** 4 (FY2021), 2 (FY2022), 8(FY2023), 7 (FY2024), 16(FY2025)

**[Career paths after graduation (including anticipated paths)]** 11 to universities, 7 to private enterprise, 1 to public research institute, 2 to others

As of October 2025

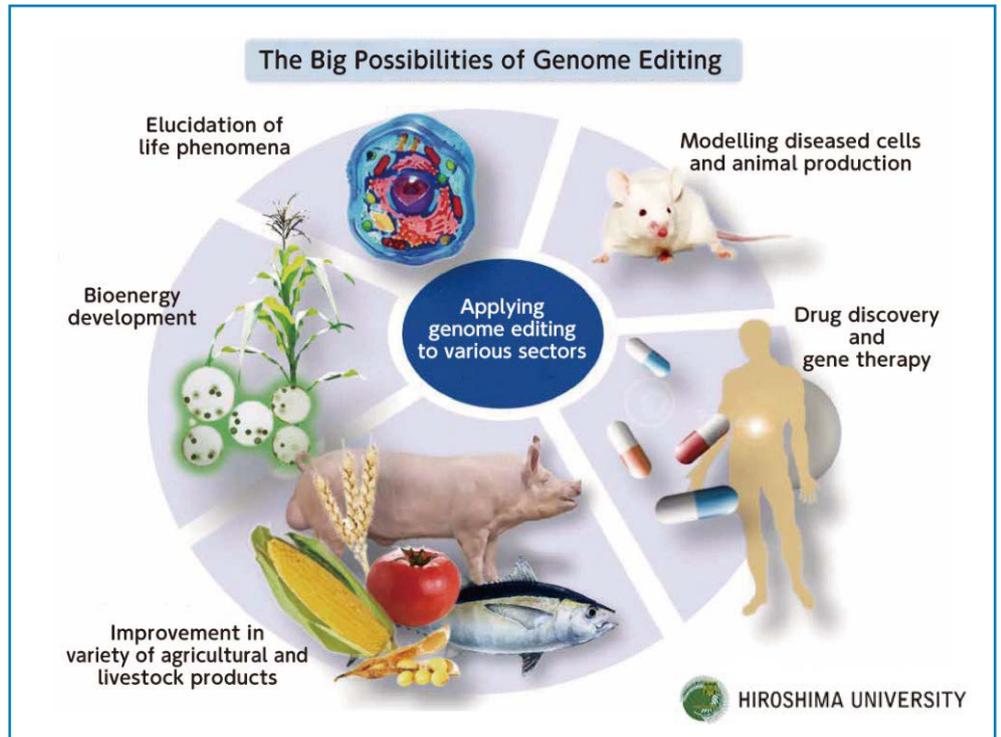
## What are the capabilities trained by the program?

Genome editing, which is a new technology to freely modify various organisms' genomic information by using artificial DNA-cutting enzymes (genome editing tools), has rapidly expanded in recent years. This is due to technologies that can be used in a wide range of applications, from microbes to animals and plants, as well as the fact that competition to develop the technologies has been intensifying. It is imperative to promote research and development in genome editing for industrial and medical applications such as selective breeding, drug discovery, and gene therapy, in addition to basic research with ethical considerations in mind in Japan. In particular, the cutting-edge research style has changed a lot with the development of CRISPR-Cas9, a new genome-editing tool introduced in 2012. While genome editing using CRISPR-Cas9 is becoming more popular in Japan at a constant speed due to its simplicity, there are only a few developers and experts on Japan's unique genome editing technology. Despite this situation, genome editing technology's intrinsic value is its use in genetic engineering and disease treatment in biological species that have been difficult to modify genetically up until now, and possibly for industrial applications.

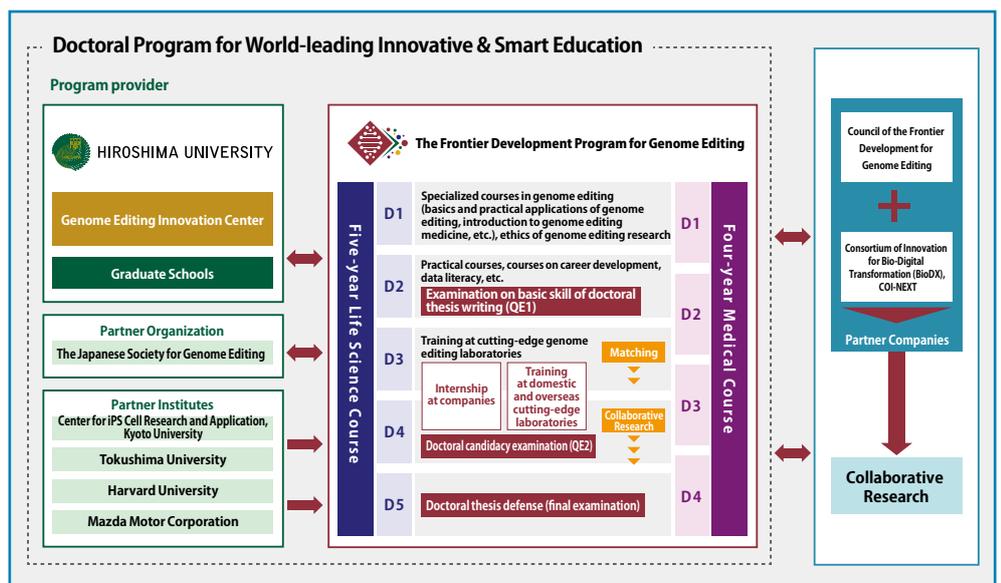
Hiroshima University is one of Japan's leading universities in genome editing research and is affiliated with several core researchers who run The Japanese Society for Genome Editing. Moreover, Program on the Consortium of Innovation for Bio-Digital Transformation (BioDX), COI-NEXT has conducted with companies in a variety of fields for the project of developing the basic technologies to use industrial genome editing and also advanced the research and development, including human resources development and career path formation in collaboration between industry and academia. According to a curriculum conducted by top national and international genome editing researchers, this program develops human resources that can respond flexibly to industrial structure changes based on new industries and social trends to them.

## Courses offered: Life Science Course/ Medical Course

This program has two courses and after the third year under the organizational structure to experience the speed of cutting-edge research, features the development of advanced and practical research and development abilities by acquiring the ability to develop



Genome editing is expected to be an available technique to use from basic research to various applicable fields (Development of biofuels from algae, improvement of useful species, drug discovery, and gene therapy)



The program aims to foster scientists and developers who play a role in creating new genome editing industries. (Industrial technology/ Basic technology developers, Drug discovery/ therapeutic scientists, Entrepreneurs of related ventures)

in society (the ability to implement in society) through collaborative research with participating companies and partner institutes of the Consortium of Innovation for Bio-Digital Transformation (BioDX), COI-NEXT.

### ① Overview of Life Science Course

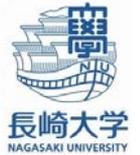
This course is a five-year degree program (transfer students can also take this course from their third year). We develop the leading-edge human resources for future genome editing by teaching students the basic to advanced knowledge and skills of genome editing in the first and second year, from the third year with practicing research to utilize the acquired knowledge and skills

through basic courses and internships for social implementation.

### ② Overview of Medical Course

This course is a four-year degree program. We develop the advanced human resources for genome editing working in the field of related medicine through advanced training at partner institutions in Japan and abroad while practicing doctorate thesis research using the acquired knowledge and skills after systematically learning the basic to advanced knowledge and skills of genome editing in the first and second year.

## Global Health Elite Programme for Building a Healthier World



**[Program Coordinator]** Madaniyazi Lina (Associate Professor, Department of Global Health, School of Tropical Medicine and Global Health, Nagasaki University)  
**[Fields of diplomas]** Doctor of Philosophy, Doctor of Philosophy in Medical Science, Doctor of Philosophy in Dental Science, Doctor of Philosophy in Pharmaceutical Science, Doctor of Philosophy in Engineering, Doctor of Information and Data Science, Doctor of Philosophy in Environmental Science, Doctor of Philosophy in Fisheries Science, Doctor of Business Administration, Doctor of Public Health  
 Name of the program to be noted: Award title: "Global Health Elite Programme for Building a Healthier World"  
**[URL]** <http://www.wise.nagasaki-u.ac.jp/?lang=en>



### Message from the President



**NAGAYASU Takeshi**  
President of Nagasaki University

### Promoting human health and peace, and pursuing research that contributes to the improvement of global health through the study of science

We believe that being selected as part of the WISE Program offers students an important opportunity to assist Nagasaki University (NU) in achieving its goal "to become a world-class center of "global health" education and research that contributes to human health on a global scale". In order to innovate graduate school education, it is important that this programme strives to become a driving force that can effectively strengthen the education systems of the university. Having the strong partnership between NU School of Tropical Medicine and Global Health and London School of Hygiene and Tropical Medicine as a foundation of our WISE Programme, we are committed to foster leaders in the field of global health through working in collaboration with both internal and external research institutions. We believe that the focus of the programme to train experts with hands-on experience is very important in addressing health challenges and improving health worldwide from a global perspective.

### Message from WISE Cooperating Institution

#### For win-win relationship by utilizing each other's intellectual property



**KOKUDO Norihiro**  
President, Japan Institute for Health Security

Since collaborative graduate school agreement with Nagasaki University in 2015, we have been collaborating in areas such as research guidance, dissertation/ethics review, accepting interns, and hosting international conferences. After the opening of the Nagasaki University NCGM Satellite in 2017, we have been working towards closer collaboration. I hope that in the future, cooperation will be promoted that leverages the intellectual property of both parties, such as conducting joint research and jointly holding seminars.

### Voices of Graduates

#### Friends that I met through the program are my asset



**TAKAYA Saho**  
Department of Infectious Diseases, International University of Health and Welfare School of Medicine (assistant professor)

My background is clinical infectious diseases and I have always been interested in febrile illnesses in Asia. I studied serological diagnosis of scrub typhus in my PhD. Now that I am back in clinical practice, I have come to realise that I have broader perspectives on patients' care and interpretation of laboratory test results. Many friends with diverse background, speciality, and interest that I met through the program are my most valuable asset.

### Good Practice



#### Establish "Highly Practical Professional Training Program" to foster professionals who can tackle pandemic and contribute to the public health policymaking and implementation.

Students in this programme include medical doctors who participated in the medical humanitarian assistance at the San Lazaro Hospital in the Philippines and for the COVID-19 cluster on a cruise ship at the Nagasaki Port. These experiences have encouraged students to work on new research topics to enhance their knowledge in this field. Taking advantage of the experience we gained through living with the new disease in this unprecedented times, we have established a Doctor of Public Health Programme (DrPH) in October 2022 with aims to strengthen our programme for fostering professionals with high level leadership and management skills in public health, who can tackle the global issues regardless of the academic disciplines and contribute to policymaking by adapting scientific evidences, decision-making, and implementation of the policy.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]** 13(FY2018), 16 (FY2019), 8 each (FY2020-FY2025), 8 (FY2026)

**[Number of people engaged in the program]** 110

**[Students' affiliated schools and departments]**

4 graduate schools, 6 departments

<Graduate School of Biomedical Sciences> Infection Research, Advanced Preventive Medical Sciences

<School of Tropical Medicine and Global Health> Department of

Global Health, Nagasaki University - London School of Hygiene and Tropical Medicine Joint PhD Degree Programme for Global Health  
 <Graduate School of Engineering> Department of Advanced Technology and Science for Sustainable Development  
 <Interfaculty Initiative in Planetary Health> Doctoral Program/Doctor of Public Health Program

※including candidates

**[WISE Cooperating Institutions]**

4 Universities, 1 Incorporated Administrative Agency, 1 Statutory

Corporation, 2 Corporate Companies

London School of Hygiene and Tropical Medicine / Hokkaido University Research Center for Zoonosis Control / National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine / School of International Health, Graduate School of Medicine, The University of Tokyo / Japan International Cooperation Agency / Japan Institute for Health Security/ Sysmex Corporation / Shionogi & Co., Ltd.

**[Number of program graduates (including anticipated graduates)]** 1 (FY2020), 1 (FY2021), 7 (FY2022), 5 (FY2023), 10 (FY2024), 8 (Expected completion in FY2025)

**[Career paths after graduation (including anticipated paths)]** 2 to medical practitioner, 3 to postdoctoral researcher, 1 to incorporated administrative agency, 6 to universities, 2 to public research, 3 to public research (other countries), 3 to private enterprise, 12 to others

As of November 2025

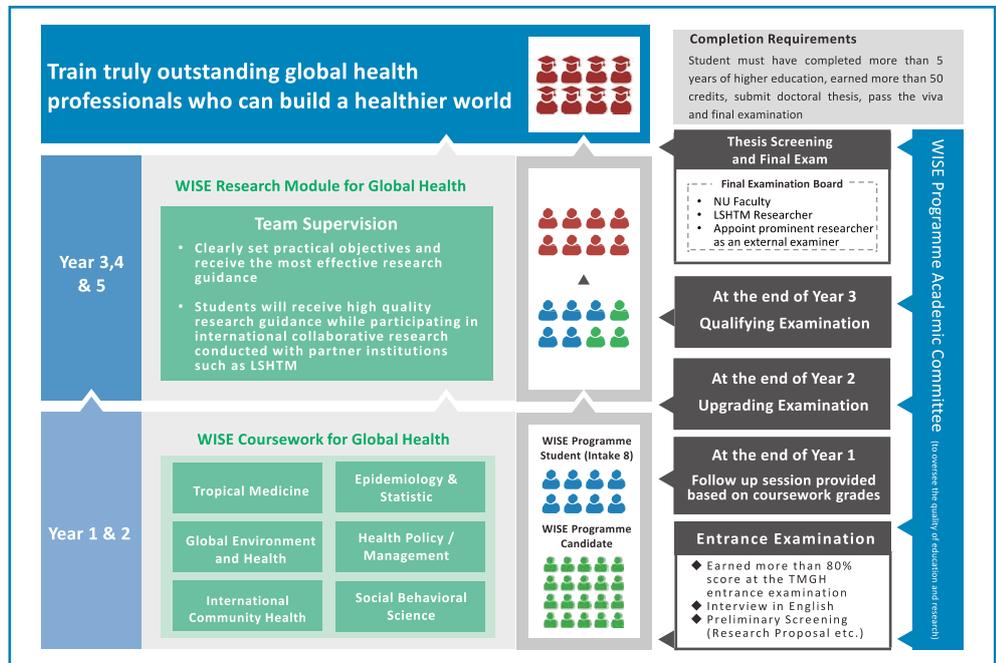
## Train global health professionals who can build a healthier world

In the 21st century, the globalization of economy, industry and distribution has rapidly progressed. This rapid growth in globalization has caused both social and environmental issues to increase which requires global attention. In particular, emerging and re-emerging infectious diseases such as HIV/AIDS, Ebola virus disease and Malaria have become global health issues and cause for concern throughout the world. Hence, we believe there is an urgent need to promote global health and encourage international societies to work together to eliminate the problems we are facing on a global scale. In order to contribute to solving these global issues, Nagasaki University (NU) has launched a degree programme, NU WISE Programme through affiliation with internationally renowned institutions in global health, the London School of Hygiene and Tropical Medicine (LSHTM, UK). Having the NU School of Tropical Medicine and Global Health at its core, NU WISE Programme aims to foster leaders in global health with a mission to “train global health professionals who can build a healthier world”. Specifically, we focus on training leaders who have the ability to understand the health challenges on a field level and are dedicated to addressing health issues utilizing their academic knowledge and practical skills in areas such as global policy planning and implementation. In addition to strengthening our collaboration with accredited international institutions such as LSHTM, we are dedicated to training leaders and pursuing common goals throughout the various internal departments such as Nagasaki University Institute of Tropical Medicine (Nekken), Graduate School of Biomedical Sciences and overseas research stations in Kenya, Vietnam and the Philippines. With our 75 year history and proven success in educating professionals in the field of infectious disease, we are committed to expanding both our education and research areas.

Furthermore, our mission is also focused on further developing our collaboration with external organizations such as Hokkaido University Research Center for Zoonosis Control; National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine; School of International Health, Graduate School of Medicine, the University of Tokyo; Japan Institute for Health Security; Japan International Cooperation Agency; Sysmex Corporation; Shionogi & Co., Ltd.. Whilst strengthening relationships with our partner organizations, we aim to develop our programme so it functions as a hub in the field of global health in Japan.



Having Nagasaki University's long history in infectious disease research and education as a foundation, the Nagasaki University WISE Programme was established based on a strong collaboration between TMGH and LSHTM



The NU WISE Programme ensures superior education and research in the area of global health through developing quality curriculum and holding regular upgrade and qualifying examinations

## Top-level education and research programme in global health

The Nagasaki University WISE Programme consists of a five-year doctoral programme. Up to the second year of the Master's degree programme, the lectures are focused on the coursework and are taught by faculty staff including practitioners whose specialized areas are cross-disciplinary and innovative. In particular, the Epidemiology and Statistics modules are taught using LSHTM teaching materials by LSHTM faculty staff invited

to teach in Nagasaki. Furthermore, advanced modules have been established for the NU WISE Programme in order to meet course requirements and facilitate quality research.

From the third year onwards, students will focus on their research work. Each student is assigned a supervisory team. By assigning faculty members specializing in different areas of research, the programme aims to maintain a diversity so students can set practical objectives and receive the most effective research guidance from their experienced supervisory team.

## Graduate Program for Power Energy Professionals



**[Program Coordinator]** HAYASHI Yasuhiro (Professor, Faculty of Science and Engineering, Waseda University)

**[Fields of diplomas]** Doctor of Engineering, Doctor of Science, Doctor of Information Science, Doctor of Philosophy

Name of the program to be noted: Graduates will receive certificates of program completion, awarded jointly by all 13 universities.

**[URL]** <https://dpt-pep.waseda.jp/en/>



### Message from the President



**TANAKA Aiji**  
President of Waseda University

### Highest S-Rating & Self-Sustaining. Nurturing Doctoral Leaders for a Smart Climate-Positive Society via the 13-University/I-G-A/Interdisciplinary Model.

Waseda University positions this program as a pillar of graduate reform for achieving a “Waseda that shines globally” as a world-class international research university. Pioneering initiatives—collaboration across the 13-University Consortium (national, public, and private universities), practical education through industry-government-academia (I-G-A) and international collaboration, and International Standardization Education via interdisciplinary integration—culminated in a new educational model. The University expanded this model campus-wide as a Graduate School Carbon Neutral Sub-major, achieving self-sustainability while preserving the strong collaboration of the 13 universities. Rooted in Waseda’s philosophy of “Research, Education, and Contribution,” we will leverage this structure to cultivate highly professional doctoral human resources contributing to a Smart Climate-Positive Society, continually pursuing educational excellence in proactive response to evolving times.

### Message from WISE Cooperating Institution

#### Expectations for Fostering Future Energy Professionals



**TANAKA Yuichi**  
Operating Officer, General Manager, Central Technical Research Laboratory, ENEOS Corporation

The ENEOS Group continues to take on the challenge of achieving both “a stable supply of energy and materials” and “the realization of a carbon-neutral society.” The energy transition requires collaboration among various stakeholders, including governments, companies, and universities. PEP emphasizes cross-disciplinary education that integrates the electric power and energy material fields with areas such as environmental economics, social systems, and law.

We have high hopes for this practical education to grow future talent.

### Voices of Graduates

#### From PEP to the U.S. Power R&D Frontier



**MURAKAMI Kohei**  
Application Engineer, EPRI IGES Applications

After earning my Ph.D., I worked at CRIEPI, a PEP partner institution, and later UC San Diego. I am now with EPRI, the leading electric power R&D organization in the United States. During my PEP internship at EPRI, the experience of driving cutting-edge research in a diverse and inclusive environment became a defining moment that shaped my international career path. Building on that formative experience, with the practical and systematic knowledge I gained through PEP, I am now at the forefront of addressing global energy challenges.

### Good Practice



PEP students can learn the essence of new business creation through 3 steps based on the wisdom of humanities and social sci. faculty to integrate energy, humanities, and science.

Humanities and Social Sciences faculties at Waseda University customize the essence of the knowledge and skills to teach knowledge and practical skills for creating new industries in the new age of energy, such as power and energy-related systems, economics, laws, and business models. PEP program takes a three-step approach to nurture students’ knowledge and skills. 1) lectures: “Social Science of Energy Innovation” to acquire basic knowledge, 2) group work: “Practical Business Creation” and 3) serving as a judge of the annual “Business Idea Contest” to gain new insight from a different perspective.

### DATA

**[Number of students recruited [For FY2026, number of students to be recruited]]** 49 (FY2018), 26 each (FY2019-2026)

**[Number of people engaged in the program]** 66

**[Students’ affiliated schools and departments]**

Waseda University 4 graduate schools, 8 departments, Hokkaido University 1 graduate school, 1 department, Tohoku University 1 graduate school, 1 department, University of Fukui 1 graduate school, 3 departments, University of Yamaguchi 1 graduate school, 2 departments, Tokyo Metropolitan University 1 graduate school, 1 department, Yokohama National University 1 graduate school, 2 departments, Nagoya University 1 graduate school, 1 department, Osaka University 1 graduate school, 1 department, Hiroshima University 1 graduate school, 1 department, Tokushima University 1 graduate school, 2 departments, Kyushu University 1 graduate school, 1 department, University of the Ryukyus 1 graduate school, 3 departments  
Waseda University <Graduate School of Advanced Science and Engineering> Advanced Science and Engineering, Applied Chemistry, Electrical Engineering and Bioscience, Nanoscience and Nanoengineering, <Graduate School of Fundamental Science and Engineering> Applied Mechanics and Aerospace Engineering,

Electronic and Physical Systems, <Graduate School of Environment and Energy Engineering> Environment and Energy Engineering, <Graduate School of Creative Science and Engineering> Department of Earth Sciences, Resources and Environmental Engineering, Hokkaido University <Graduate School of Information Science and Technology> Information Science and Technology (Course of Systems Science and Informatics), Tohoku University <Graduate School of Engineering> Electrical Engineering, University of Fukui <Graduate School of Engineering> System and Infrastructure Engineering for Safe and Sustainable Society (Electrical System), Fundamental Engineering for Knowledge-Based Society (Electronic Material), Advanced Interdisciplinary Science and Technology (Electrical and Electronics Engineering), University of Yamaguchi <Integrated Graduate School of Medicine, Engineering, and Agricultural Sciences> Engineering (Special Educational Program for Green Energy Conversion Science and Technology, Energy Materials Science Course, Green Energy Conversion Science and Technology Major), Tokyo Metropolitan University <Graduate School of Urban Environmental Sciences> Applied Chemistry for Environment, Yokohama National University <Graduate School of Engineering Science> Chemistry and Life Science <Mathematics, Physics, Electrical Engineering and Computer Science, Nagoya University <Graduate School of Engineering> Electrical Engineering, Osaka University <Graduate School of Engineering> Electrical, Electronic, and Infocommunications Engineering,

Hiroshima University <Graduate School of Advanced Science and Engineering> Advanced Science and Engineering, Tokushima University <Graduate School of Sciences and Technology for Innovation> Science and Technology, Sciences and Technology for Innovation, Kyushu University <Graduate School of Information Science and Electrical Engineering> Electrical and Electronic Engineering, University of the Ryukyus <Graduate School of Engineering and Science> Engineering, Materials, Structural and Energy Engineering, Interdisciplinary Intelligent Systems Engineering  
**[WISE Cooperating Institutions]**  
19 universities, 2 companies, 2 research institutes, 1 industry-academia collaboration organization  
Hokkaido University/Tohoku University/University of Fukui/University of Yamaguchi/Tokyo Metropolitan University/Tokushima University/Nagoya University/Osaka University/Hiroshima University/Tokushima University/Kyushu University/University of the Ryukyus/The University of Tennessee, Knoxville/University of Chicago/University of Washington/Tsinghua University/Chulalongkorn University/Technical University of Munich/Korea University/ENEOS Corporation/Tokyo Gas Co. Ltd./Central Research Institute of Electric Power Industry/National Institute of Advanced Industrial Science and Technology/Power Academy

**[Number of program graduates (including anticipated graduates)]** 14 (FY 2020), 13 (FY 2021), 9 (FY 2022), 23 (FY 2023), 18 (FY 2024), 2 (FY 2025 September)

**[Career paths after graduation (including anticipated paths)]** 25 to universities/41 to private companies/7 to public research institutions/6 to others

As of November 2025

## Fostering doctoral resources to innovate power and energy

The world has seen emerging global trends such as the shift to digital and AI, and a focus on global environmental protection for the realization of a sustainable society. In response, the industry sector related to electric power and energy infrastructure is entering a period of structural transformation. Many technological innovations have been achieved, such as renewable energy and systems for its management; electric vehicles; storage batteries; and IoT. As a result, the energy supply sector has begun a shift to small-scale distributed work. Now there is an urgent need for unconventional transformation and reconstruction of energy networks.

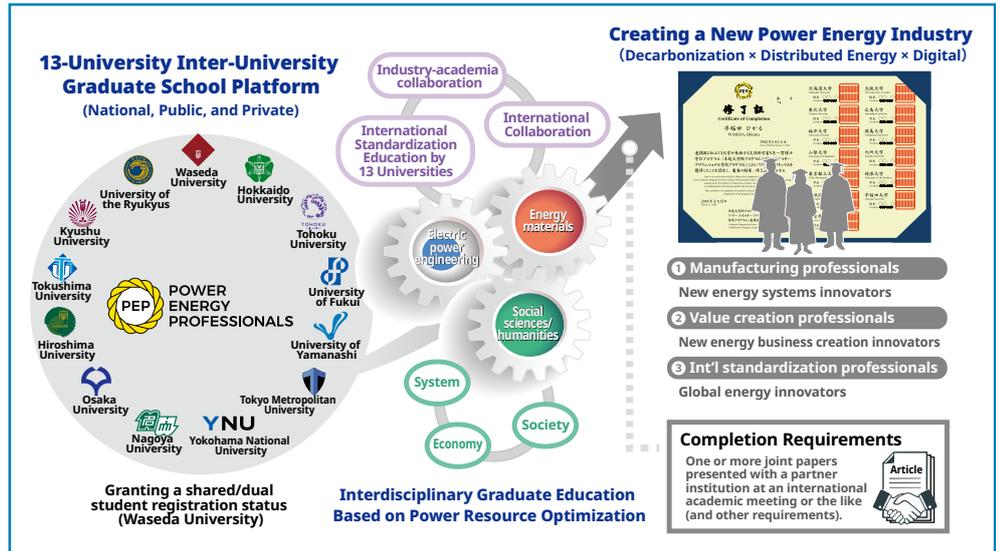
This program provides an inter-university platform for collaborative education and research among 13 national, public, and private universities to enable the creation of new industries that will contribute to Japan's future vision of achieving "Society 5.0" and 2050 carbon neutrality. The program promotes more practical education and research than usual, in collaboration with domestic and overseas companies and research institutes spanning numerous energy fields.

We envision a new generation of advanced intellectual professionals who will design the future society, particularly: 1) manufacturing professionals who can innovate new energy systems; 2) business creation professionals who can innovate new energy business models; and 3) international standardization professionals who can innovate global energy practices.

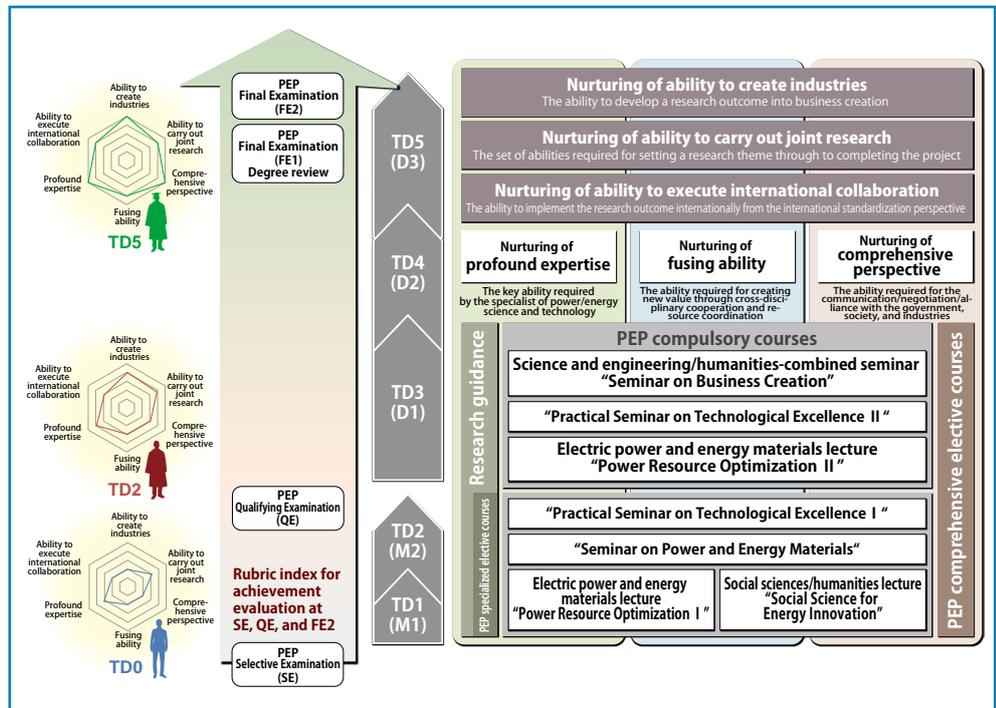
We offer a five-year program to give students an integrated education and research experience to ensure that they acquire six pillars of deep expertise; bird's-eye view perception; strong fusion; joint research; industrial creation; and international collaboration, all essential for new era intellectual professionals.

## Cross-disciplinary education and standardization education

This program sees the energy value chain of the future as ranging from the tiniest component, the electric charge, to huge power networks. With that vision, we have prepared a comprehensive curriculum that includes: the materials field, which produces highly functional distributed power resources; the power engineering field, for optimal integration, control and operation of resources; and the humanities and social sciences, to design an optimal society. Ten credits are required in nine courses, including: Power Resource Optimization, a multidisciplinary course in power



Inter-University Graduate School Platform of 13 National, Public, and Private Universities: A human resource development framework that will contribute significantly to the creation of new electric power and energy industries.



Whole aspect of the PEP educational program: Providing education mixing different fields for designing a future society

engineering and energy materials; Social Science for Energy Innovation, lectures on the implementation of innovative energy infrastructure systems, intended to hone the students' skills and vision for business development; and Seminar on Business Creation.

The program also develops the students' capacity through: specialized elective courses that leverage the unique expertise of each university; panoramic elective courses including lecture courses on leadership development lectures and basic AI/IoT; multi-layered education and research guidance; and seminars on new industry creation—all in collaboration with a comprehensive group of research organizations. Furthermore, in coordination with Japan's power and

energy system standardization measures, the EMS R&D Center, established at Waseda University as a paragon of neutrality and fairness, has been partially opened to provide unparalleled international standardization education.

We ensure high quality of education with various types of examinations, including Selective Examination (SE); Qualifying Examination (QE); Final Examination 1 (FE1) for degree review; and PEP's unique Final Examination 2 (FE2) to verify acquisition of necessary credits and publication of one or more papers co-authored in collaboration with institutions at international academic societies and the like. The PEP program will continue to foster "PEP-people", Ph.D. holders who will energize society.

## WISE program for Sustainability in the Dynamic Earth



**SyDE** WISE Program for Sustainability in the Dynamic Earth  
東北大学変動地球共生学卓越大学院プログラム

**[Program Coordinator]** NAKAMURA Michihiko (Professor, Major of Earth Science, Graduate School of Science, Tohoku University)  
**[Fields of diplomas]** Doctor of Philosophy (Science)/(Engineering)/(Information Sciences)/(Environmental Studies)/(Medical Sciences)/(Letters)/(Economics)/(Management), Doctor of Philosophy  
Name of the program to be noted: WISE program for Sustainability in the Dynamic Earth  
**[URL]** <https://www.syde.tohoku.ac.jp/english/>



### Message from the President



**TOMINAGA Teiji**  
President, Tohoku University

### Fostering leaders to respond to various risks with practical skills based on advanced knowledge, developing HR to lead the transformation of future society

Tohoku University has been accredited as Japan's first university for International Research Excellence. In line with this recognition, we are advancing reforms in our graduate education to meet the standards of a world-class research university. In 2027, the functions of Advanced Graduate School will be further enhanced to strengthen centralized management, expand diverse and appealing graduate programs.

To better respond to social needs and academic advancements, we will foster brilliant researchers and entrepreneurs who will lead international initiatives, including in the industrial sector, by transforming conventional education into cross-disciplinary programs.

This program aims to promote sustainable development—a shared goal of humanity—through co-creation with society. Even after the funding period ends, we will continue to foster knowledge professionals equipped with advanced practical skills based on cutting-edge expertise, capable of responding to a wide range of risks.

### Message from WISE Cooperating Institution

#### Innovating in Disaster Risk Reduction through International Cooperation



**MINAMI Keisuke**  
Disaster Risk Reduction Group,  
Global Environment Department,  
Japan International Cooperation  
Agency

In today's world, where countries are interconnected and global challenges such as climate change demand collective action, international cooperation is indispensable. Through the practice on planning of ODA projects based on individuals' interests and fields of expertise with support of JICA us, students will deepen their understanding of international cooperation and then we hope this experience will foster the development of globally minded individuals who will contribute to Japan's future role in the international community.

### Student's Voice

#### Comprehensive Learning of Risk Management from Soft and Hard Aspects



**HACHIYA Yu**  
1st year of doctoral program in  
Graduate School of Arts and  
Letters, Tohoku University

I typically study why people blame victims of sexual crimes for their ordeals from a psychological perspective. Motivated by my wish to expand my research focus to include support for socially vulnerable people, such as disaster victims, I joined the program to learn about disasters. Through the program, I have had the opportunity to learn about risk management and disaster prevention from both engineering and social perspectives, gaining insights that I would not otherwise obtain from my research activities conducted alone.

### Good Practice



#### Program Students Exhibit at the NIED Open Day: Learning Together Through Quiz to Pass on Memories and Records of the Great East Japan Earthquake to the Next Generation

As part of the autonomous project by the SyDE WISE Program, the doctoral and master's student team "HagiiZ" exhibited at the Open Day of the National Research Institute for Earth Science and Disaster Resilience on April 19th, 2025. They showcased a children's exhibit titled "Do You Know 3.11? - Learn with Tohoku University Students." The aim of the exhibit was to raise disaster prevention awareness among men and women of all ages across Japan. The students were responsible for the entire project, from planning and design to dialogue, thus contributing to the social implementation of disaster science. Their interdisciplinary perspectives and practical approaches could facilitate disaster prevention based on new outlooks.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

35 (FY2020), 20 (FY2021), 15 each (FY2022-FY2025)

**[Number of people engaged in the program]** 91

**[Students' affiliated schools and departments]**

7 graduate schools, 15 departments

<Graduate School of Science> Earth Science, Geophysics

<Graduate School of Engineering> Quantum Science and Energy Engineering, Chemical Engineering, Civil and Environmental Engineering, Architecture and Building Science, Management Science and Technology

<Graduate School of Information Sciences> Applied Information Sciences,

Human-Social Information Sciences

<Graduate School of Environmental Studies> Environmental Studies for Advanced Society

<Graduate School of Medicine> Medical Sciences

<Graduate School of Arts and Letters> Japanese Studies, Global Humanities, Integrated Human Sciences

<Graduate School of Economics and Management> Economics and Management

**[WISE Cooperating Institutions]**

7 universities, 2 incorporated administrative agencies, 11 companies, 2 national institutes

Stanford University/ Harvard University/ University of Washington/ University College of London/ University of Indonesia/ Sorbonne University/ University of Hawaii at Manoa/ Japan International Cooperation Agency/ Tokio Marine & Nichido Fire Insurance Co., Ltd/ Nippon Koei Co., Ltd/ Penta-Ocean Construction Co., Ltd/ Japan Organization for Metals and Energy Security/ Sumitomo Metal Mining Co., Ltd./ National Institute of Advanced Industrial Science and Technology/ National Research Institute for Earth Science and Disaster Resilience/ HAZAMA ANDO CORPORATION/ INPEX CORPORATION/ Okumura Corporation/ OYO Corporation/ Geothermal Engineering Co., Ltd./ FUKKEN CO., LTD./ KAJIMA CORPORATION

**[Number of program graduates (including anticipated graduates)]** 6 (FY2022), 7 (FY2023), 9 (FY2024), 9 (FY2025)

**[Career paths after graduation (including anticipated paths)]** 11 to universities, 8 to private enterprise, 5 to public institutes, 3 to teachers, 4 to others

As of November 2025

## Study the Earth, Discover the future

Located in an orogenic belt, Japan is prone to natural disasters such as earthquakes, volcanic eruptions, and torrential rain, which has led to high demand from society for quality scientific research. With continued advances in our knowledge of Earth's structure, the field of Earth system science has evolved into a precise understanding of the mechanism of dynamic phenomena, which is seamlessly linked to disaster science. In addition, modern society faces new large-scale risks such as space environment disasters caused by fluctuations in the planetary space magnetic field.

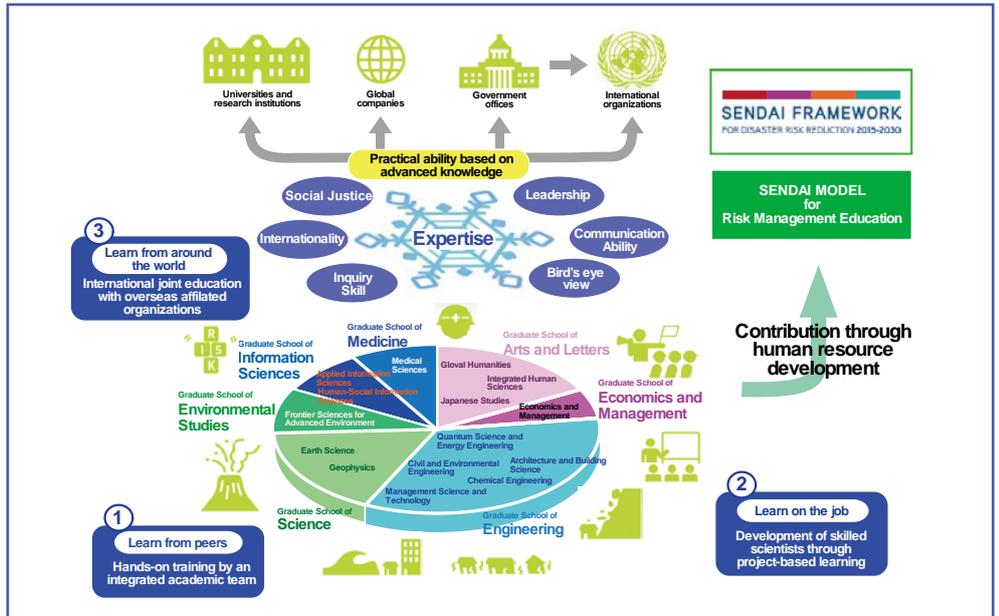
Earth scientists in Japan have specialized in research into subduction zone phenomena such as earthquakes and volcanic eruptions. Now, these fundamental studies have progressed to the stage where they can directly lead to essential improvements in our disaster prevention capabilities. Moreover, many disasters are caused by both natural environmental factors and a combination of information, social, and economic factors. To build a society that can respond to diverse and complex risks, we need to further elucidate the mechanisms governing natural phenomena and improve corresponding prediction techniques. We must also urgently develop skilled scientists who have the practical ability to understand humans and society and communicate scientific research results to society. This program aims to produce knowledge professionals who can seamlessly acquire and convey advanced knowledge for improving our understanding of issues related to Earth system science.

## Study among diversity, on the job, from around the world

In this program, we will achieve these educational objectives through hands-on training by an integrated academic team with the participation of a wide range of departments. This style of training exploits the fact that students learn more from each other than from lectures.

As a second educational policy, we will invite private companies and organizations to build a "Sustainability Study Consortium." One of the consortium's purposes is to develop skilled scientists that are adept at working in the field through project-based learning. Students will learn the basics of risk management, which forms the basis of all industries.

The third policy of this program is to provide international joint education with director-class faculty members from overseas affiliated organizations. In



We will develop "snow crystal-type human resources" with multifaceted abilities through hands-on education that integrates literary sciences, collaborative education with industry-government partners and international joint education.



PBL lab-courses (left: Drone flight test for evacuation support; upper right: mineral resource lab by an JOGMEC expert) and JICA expert's lecture on International trend and practical knowledge for disaster risk reduction & Sendai Framework

collaboration with faculty members who have experience of United Nations organizations and the Japan International Cooperation Agency (JICA), we plan to collaborate with international organizations to conduct research education and achieve international contributions.

Through the three educational policies unique to this graduate degree program: "study among diversity, on the job, from around the world," we will develop "snow crystal-type human resources" with multifaceted abilities. We aim to supply these human resources to a wide range of sectors, including industry, government, and academia.

In 2015, the United Nations adopted the "Sendai Framework for Disaster Risk Reduction," a framework for countries around the world to implement disaster prevention and mitigation. Tohoku university has made a significant contribution to formulating this framework and will further contribute to achieving this goal through education. The Tohoku region is characterized by globally rare large-scale disasters and massive natural risks; thus, researchers visit this region from all over the world. By taking advantage of our location, this program aims to create digital teaching materials and disseminate them internationally via the Internet.

## Applied Humanities Program for Cultivating Global Leaders



**[Program Coordinator]** YONEMURA Chiyo (Professor, Graduate School of Humanities, Chiba University)

**[Fields of diplomas]** Doctor of Philosophy (Philosophy), Doctor of Philosophy (Public Affairs), Doctor of Philosophy (Engineering)

Name of the program to be noted: Applied Humanities Program for Cultivating Global Leaders

**[URL]** <https://jinbun-takuetsu.chiba-u.jp/top/en/index.html>



### Message from the President



**YOKOTE Koutaro**  
President, Chiba University

### Fostering top management personnel who will lead the diverse society by utilizing humanities

Based on the philosophy of “Always Aim Higher”, Chiba University promotes outstanding education and research that integrates humanities and science, intending to develop next-generation human resources who can play an active role as leaders in the global society. At the same time, we continue to take on constant challenges, such as reforming the structure based on our vision.

This program continues even after the subsidy period ends, and cultivates flexible cultural imagination and a bird's-eye view of literacy through exploration activities for various issues in Asia-Eurasia, a pluralistic world based on a distinctive educational and research base in the humanities field at our university and affiliated universities. In the future, the trained human resources will lead a diversified society in collaboration with industry. We hope that this program's graduates will serve as a bridge between the humanities and the community.

### Message from WISE Cooperating Institution

#### Thinking of the World from Asia



**YAMAMOTO Yuriko**  
Executive Director and Secretary General of AEON Environmental Foundation

AEON has been working on glocal management to exist and prosper together with the local region centering on Asia. In order to develop business in the Asian market, it is necessary to learn about the lives of customers in the region, realize an environment of society for diversity, and pursue global values. We think that Takuetsu University's graduate program accepts the challenge of such an initiative by industry-academia collaboration.

### Student's Voice

#### Interdisciplinary and Collaborative Learning in this Program



**ISHII Kohei**  
Second Year Doctor's Course, Graduate School of Humanities and Studies on Public Affairs, Chiba University

This program enrolls students from a wide range of specialized fields, fostering interdisciplinary discussions through annual joint conference and seminar-style courses within the university. In these activities, a mutual understanding across different fields is deemed essential. The program provides ample opportunities for collaborative learning among students, where they actively engage with one another. This collaborative learning environment is considered indispensable for my research activities.

### Good Practice



### Student exchange with international universities

Since its inception, this program has actively advanced collaborations with overseas universities and research institutions through both online and on-site exchanges. In March 2025, participating graduate students traveled to Zhejiang Gongshang University in China for an exchange activity, during which not only an interdisciplinary research forum was held but also a joint visit to a local museum was organized, further deepening the interaction. This program continues to promote student exchanges with domestic and international universities.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

12 (FY2020), 12 (FY2021), 12 (FY2022), 12 (FY2023), 12 (FY2024), 12 (FY2025), 12 (FY2026)

**[Number of people engaged in the program]** 89

**[Students' affiliated schools and departments]**

Chiba University 3 graduate schools, 6 departments, 1 program, Okayama University 1 graduate school, 3 departments, Nagasaki University 1 graduate school, 1 department, Kumamoto University 1 graduate school, 3 departments, The Graduate University for Advanced Studies 1 graduate school, 1 department Chiba University <Graduate School of Humanities and Studies on Public Affairs>

Humanities Studies on Public Affairs and Social Sciences, Humanities and Studies on Public Affairs <Graduate School of Science and Engineering> Mathematics and Informatics, Creative Engineering <Graduate School of Informatics> Faculty of Informatics <Graduate Degree Program of Global and Transdisciplinary Studies>, Okayama University <Graduate School of Humanities and Social Sciences> Japanese and Asian Culture, Human Socio-Culture, Socio-Cultural Sciences, Nagasaki University <Graduate School of Global Humanities and Social Sciences> Global Humanities and Social Sciences, Kumamoto University <Graduate School of Social and Cultural Sciences> Modern Social Human Studies, Cultural Science, Human and Social Sciences The Graduate University for Advanced Studies, SOKENDAI

<Graduate Institute for Advanced Studies> Japanese History

**[WISE Cooperating Institutions]**

6 universities, 1 inter-university research institute corporation, 1 public interest incorporated foundation, 6 companies Okayama University/Nagasaki University/Kumamoto University/The Graduate University for Advanced Studies/Zhejiang Gongshang University/Institute for Oriental and Classical Studies, National Research University "Higher School of Economics" (russian)/National Museum of Japanese History/Aeon Environmental Foundation/AEON CO.,LTD./JTB Tourism Research & Consulting Co./Chiba Bank/Keiyo Bank/The Japan Research Institute, Limited/NLI Research Institute

**[Number of program graduates (including anticipated graduates)]** 1 (FY 2024), 4 (FY 2025)

**[Career paths after graduation (including anticipated paths)]** 1 to universities, 1 to public research institute, other prospective graduates' career paths are undecided as of November 2025 As of November 2025

## Asia-Eurasia × Digital Humanities: Challenge of Humanities

Humanities is the study of thoughts, words, behavior, ways and history of society that link people together. It is a seemingly roundabout way of gaining a fundamental understanding of people. Yet, what we see in front of us is a complex world in which people of increasingly diverse backgrounds move and come into contact with one another, which causes friction. Because we are in such a modern world, there is a need for a new study of humanities to move into the folds of diverse cultural backgrounds and sensitivity and ever-changing social dynamics to be able to identify guidelines for the resolution of issues.

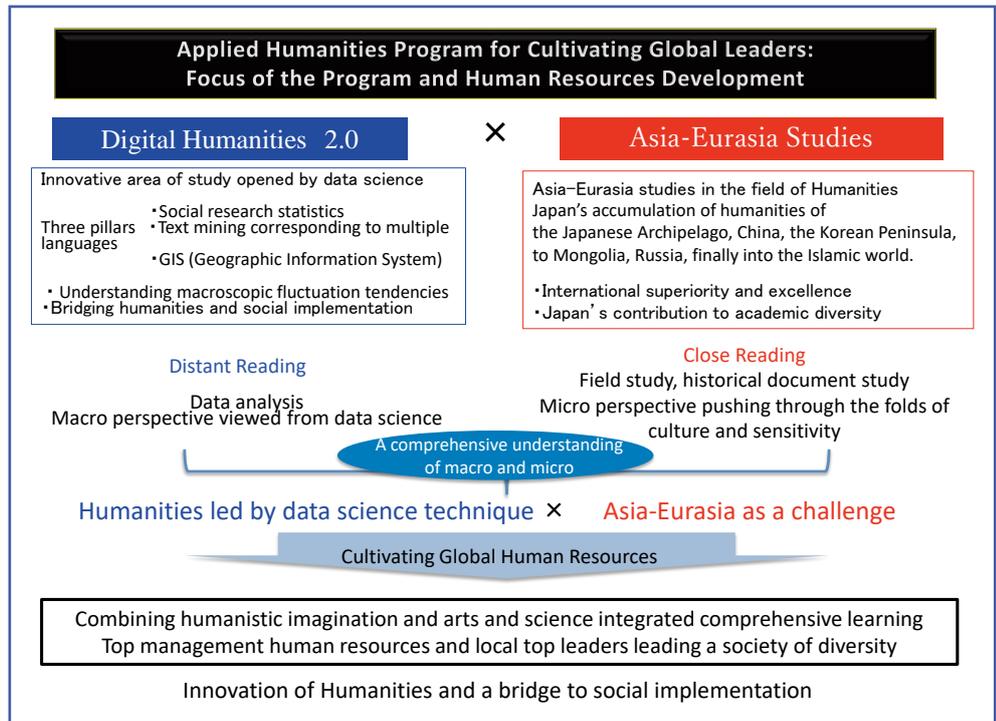
The first focus of the program is Asia-Eurasia. This area covering East Asia, Southeast Asia, Russia in Northern Eurasia and the Islam world is not only deeply related to Japan's future direction, but it is an experimental site (developed areas facing challenges) where diverse issues of future society arise in a pluralistic world where multi-ethnic, multi-lingual, multi-cultural and multi-religious elements are mixed. It is the region where the strength to deal with an ever-changing world is tested. The program aims to cultivate the capacity to closely analyze the pluralistic world of Asia-Eurasia on multiple levels.

The second focus is on Digital Humanities. In order to analyze the direction of a changing society, technology to visualize environmental changes and social space with GIS (Geographic Information System) or data science technology to forecast the trends of social movement by making utmost use of social research statistics and text mining (statistical analysis of text) is necessary. It is also an important focus of the program to localize data science in the application of analysis in Humanities to understand the social movement of Asia-Eurasia.

## Excellent Educational Program Through a Cooperative Network

As stated above, the program aims to cultivate individuals to lead in the future diverse environment by comprehensively learn two realms: micro perspective and technology to move into the folds of culture and sensitivity; and macro perspective and technology to see from the perspective of data science (Digital Humanities).

This program to cultivate such individuals has structured a broad network inside and outside Japan. In Japan, we coordinate with Chiba University, Okayama University, Nagasaki University, Kumamoto University, The Graduate University for Advanced Studies, National Museum of Japanese History, AEON CO., LTD., JTB



Asia-Eurasia × Digital Humanities: Bridging Humanities and Social Implementation



Excellent educational program implemented within a wide-area network

Tourism Research & Consulting Co., Chiba Bank, and Keiyo Bank. In addition, we have a network with institutions of higher education in China and Russia. Participating universities have accumulated innovative achievements in intercommunication in Asia and Eurasia regions. Training in local offices of universities throughout China, Taiwan, South Korea, Thailand, Indonesia, Vietnam, and Myanmar is offered, and training opportunities are also planned at local branch offices of

AEON and JTB. Graduate students participating in the program may receive guidance not only from the graduate school they belong to but also from a diverse line-up of professionals in other affiliate institutions. Students heighten their motivation for study and research in regular meetings for research reports and discussions to encourage one another and engage in friendly competition.

## Innovative Medicine CHIBA Doctoral WISE Program



**[Program Coordinator]** SAITO Tetsuichiro (Executive Vice President, Professor, Department of Developmental Biology, Graduate School of Medicine, Chiba University)

**[Fields of diplomas]** Doctor of Philosophy (Medicine), Doctor of Philosophy (Pharmacy)  
Name of the program to be noted: Innovative Medicine CHIBA Doctoral WISE Program

**[URL]** <https://www.m.chiba-u.jp/dept/imec/en/>



### Message from the President



**YOKOTE Koutaro**  
President, Chiba University

### Fostering creators of new “medical knowledge” and innovators of world-leading innovative medicine

Based on the philosophy of “Always Aim Higher”, Chiba University promotes outstanding education and research that integrates humanities and science, intending to develop next-generation human resources who can play an active role as leaders in the global society. At the same time, we continue to take on constant challenges, such as reforming the structure based on our vision.

This program will continue even after the subsidy period ends, and develop human resources with flexible thinking ability, challenging spirit, and resilience through education in collaboration with the world’s top research institutes and familiar with multiple specialized fields. In the future, they will create new medical knowledge and innovation. We hope that graduates of this program will become global leaders driving innovation in medicine and healthcare, and to contribute to building a sustainable and healthy society for the future.

### Message from WISE Cooperating Institution

#### Co-creation for Developing Human Resources to Tackle Social Issues



**SEKI Nobuo**  
Strategic Technology Planning,  
Technology Strategy  
Sysmex Corporation

Sysmex, under the slogan “Together for a better healthcare journey,” is committed to addressing global healthcare challenges with a focus on laboratory testing. We strongly resonate with the philosophy of Chiba University’s iMeC-WISE Program, which aims to “foster PhD professionals who create innovative healthcare and nurture innovators who take on social challenges.” We hope to deepen our collaboration in developing individuals who possess both practical capabilities and a strong sense of purpose—those who can pioneer the future.

### Student’s Voice

#### Expanding Research through Collaboration across Fields



**MIYASHITA Yasuomi**  
D3, Frontier Medicine and  
Pharmacy, Graduate School of  
Medical and Pharmaceutical  
Sciences, Chiba University

I joined program because it allows me to work with researchers from different fields and develop my research from a broader point of view. Based on the study that was featured in a Chiba University press release last year, I am now working with my sub-major supervisor on an applied research project that combines different scientific approaches, and we are preparing a new paper. I plan to complete my Ph.D. ahead of schedule next spring and hope to continue developing my research by making use of the benefits of working across fields.

### Good Practice



#### iMeC-WISE Retreat: Inspiring Innovation through Collaboration and Diverse Perspectives

The iMeC-WISE Retreat is an annual event organized and conducted in English by students themselves. In this program, students from different fields and nationalities form teams, work together to create business plans, and present their ideas to an audience. By combining creativity with their own research, they explore how science can contribute to solving real-world problems and develop innovative approaches to social challenges. The retreat provides a unique opportunity for students to broaden their horizons, enhance their communication and teamwork skills, and gain new insights that connect research with society. Advisors from cooperating institutions and entrepreneurs are also invited to offer professional feedback and practical advice, helping students refine their ideas for real-world implementation.

### D A T A

**[Number of students recruited (For FY2026, number of students to be recruited)]**

15 each(FY2020-2026)

**[Number of people engaged in the program]** 69

**[Students’ affiliated schools and departments]**

4 graduate schools, 10 departments

<Graduate School of Medical and Pharmaceutical Sciences>Frontier Medicine and Pharmacy, Medical Sciences, General Pharmaceutical Sciences

<Graduate School of Science and Engineering>Mathematics and Informatics, Earth and Environmental Sciences, Advanced Science and Engineering, Creative Engineering, Fundamental Engineering

<Graduate School of Nursing>Nursing

<Graduate School of Horticulture>Environmental Horticulture

**[WISE Cooperating Institutions]**

4 universities, 3 public research institutions, 8 companies  
University of California San Diego/University of Southern

California/Charité – Universitätsmedizin/University of Toronto/Institute of Physical and Chemical Research/National Institute of Advanced Industrial Science and Technology/National Institute for Quantum Science and Technology/Takeda Pharmaceutical Company Limited/Microsoft Japan Co., Ltd/Sysmex Corporation/Eli Lilly Japan K.K./Olympus Corporation/DNA Chip Research Inc./H.U. Group Research Institute G.K./Genefrontier

**[Number of program graduates (including anticipated graduates)]** 2(FY 2022), 6(FY 2023), 7(FY 2024), 10(FY 2025)

**[Career paths after graduation (including anticipated paths)]** 12 to universities, 8 to private enterprise, 1 to public research institute, 4 to medical practitioner

As of November 2025

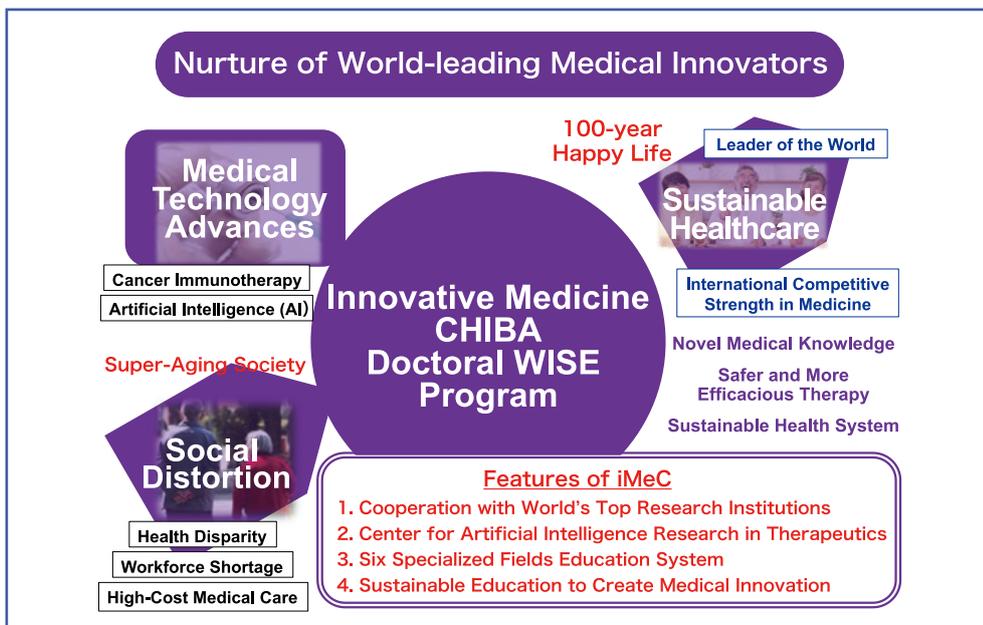
## Nurture of World-leading Medical Innovators

The latest technologies including cancer immunotherapies and artificial intelligence are dramatically advancing medical care. Continuous creation of “novel medical knowledge” is imperative for Japan, which is a super-aging country, to lead the world as a future model to achieve a sustainable healthier society.

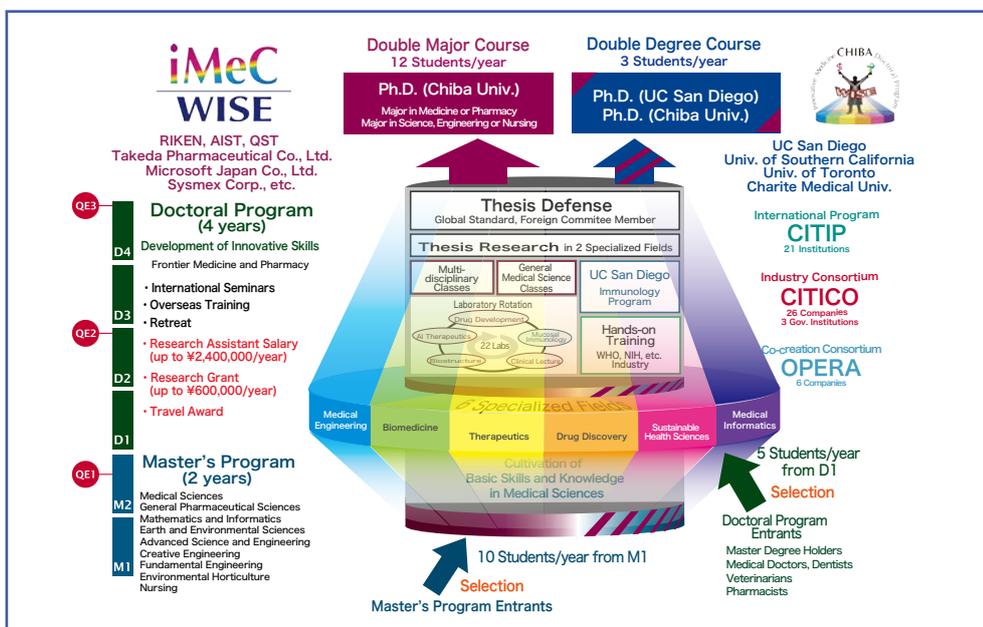
The Graduate School of Medical and Pharmaceutical Sciences takes a lead role in operation of Innovative Medicine CHIBA Doctoral WISE Program (iMeC-WISE), based on its more than 100-year history. iMeC-WISE implements the new graduate education system in cooperation with world-class academic and research institutions, including RIKEN and the University of California San Diego (UC San Diego), many companies and the Center for Artificial Intelligence Research in Therapeutics of Chiba University. Through innovative comprehensive training with a focus on multidisciplinary close mentoring to nurture high level of broader perspective, cooperativeness, leadership and entrepreneurship, iMeC-WISE aims to foster the next generation of outstanding researchers and innovators who will contribute to the development of medical sciences, pave the way to novel therapies and drugs, and develop sustainable healthcare systems.

## Sustainable Education System to Create Medical Innovation

Talented graduate students with different backgrounds will major in at least two out of the six specialized fields, which are organized beyond departments and institutions: Therapeutics, Medical Engineering, Biomedicine, Drug Discovery, Sustainable Health Sciences and Medical Informatics. The students are required to cultivate basic skills and knowledge on Medical Sciences studying in nine areas of the two-year Master’s Program. Then they accomplish at least two projects in different fields, equivalent to double majors, in Frontier Medicine and Pharmacy of the four-year Doctoral Program. Each student is guided by professors from three fields and takes the curriculum to nurture multidimensional skills necessary for the creation of interdisciplinary innovation: rotation training, self-planned overseas training, self-directed retreat and others. The International Double Degree Course, in which students can earn Ph.D. degrees from both Chiba University and a foreign university such as UC San Diego is provided. The Chiba Innovative Therapeutics



iMeC-WISE nurtures world-leading medical innovators in cooperation with many world-class institutions and the Center for Artificial Intelligence Research in Therapeutics of Chiba University.



Students cultivate basic skills and knowledge on Medical Sciences in the Master’s Program and then take either the Double Major Course or the International Double Degree Course.

International Program (CITIP) for global education containing 37 visiting professors of 21 foreign institutions, and the Chiba Innovative Therapeutics Industry Consortium (CITICO) for industry-government-academia collaborative education consisting of 26 companies, and three government institutions are also engaged in this program.

at the end of the 2nd year of the Doctoral Program, and QE3 at the end of the Program. Each dissertation committee includes at least one foreign professor to ensure that the degree is based on the international standards.

Ten students for the Master’s Program and five students for the Doctoral Program enter iMeC-WISE every year. Qualifying examinations (QEs) are conducted at three stages to assure the quality of the academic degree: QE1 in the 2nd year of the Master’s Program, QE2

iMeC-WISE provides students with financial support and the career development office as well as subsequent post-graduate employment positions to maximize each student’s potential and build the foundation for career success.

## Forefront Physics and Mathematics Program to Drive Transformation



[Program Coordinator] MURAYAMA Hitoshi (University Professor, Kavli Institute for the Physics and Mathematics of the Universe, The University of Tokyo)

[Fields of diplomas] Doctor of Philosophy, Doctor of Science, or Doctor of Engineering

Name of the program to be noted: Completed the Forefront Physics and Mathematics Program to Drive Transformation

[URL] <https://www.s.u-tokyo.ac.jp/en/FoPM/>



### Message from the President



**FUJII Teruo**  
President, The University of Tokyo

### Creating the future through dialogue: Maximizing the potential of basic science specialists

The Forefront Physics and Mathematics Program to Drive Transformation (FoPM) aims to set a new standard for graduate-level education at the University of Tokyo and beyond. To achieve academic excellence, I believe that it is essential for diverse groups of people to come together to discuss, learn, and identify and share challenges and solutions. In this context, FoPM provides a diverse and inclusive place for curious and talented graduate students to come together and engage in an open and transparent dialogue with globally-minded scientists at various stages along a wide variety of career paths. This focus on diversity and dialogue, in addition to the acquisition of strong research skills, will foster graduates with both specialized knowledge in their chosen field and the skills required to transcend boundaries and lead the future of science and society.

### Message from WISE Cooperating Institution

#### Closing the gaps between research fields, countries and cultures



**Klaus KIRCH**  
Professor at ETH Zurich and Head of Laboratory for Particle Physics, Paul Scherrer Institute, Switzerland

My group and PSI Particle Physics cooperate with UTokyo, KEK and J-PARC. This involves student visits in both directions, something we wish to further intensify with the aid of FoPM. We recently organized a multidisciplinary symposium between ETH, UTokyo, and the University of Zurich. Several FoPM students attended and met with students from the Zurich region. A great experience to exchange views and insights – sometimes gaps between research fields appear more challenging to cross than distances between countries and cultures.

### Student's Voice

#### Expanding future pathways through diverse perspectives



**TOMODA Hiroko**  
Graduate Student (D3), Department of Applied Physics, Graduate School of Engineering

I was drawn to the opportunity to interact with students from diverse research backgrounds beyond my laboratory and department. At regular events, we exchange updates on our progress, and this has been a significant source of motivation for my own research. Moreover, during the program's International Research Experience, I discovered the joy of collaborating in a diverse environment and embracing new perspectives. This has inspired me to consider pursuing overseas postdoctoral research opportunities after my Doctoral studies.

### Good Practice



#### Diversity, dialogue and faculty development

**Recommendation Letter Writing Training:** Workshops for faculty highlight the importance of the recommendation letter in deciding students' future careers and provide tips on how to write a strong one.

**Diversity and Ethics Training:** Students learn the importance of respectful interaction and collaboration with people of different genders and discover how this can give them a new perspective on their research.

**Lab Rotation:** Students spend 4–6 weeks working in a different field of research to their own. Through this they experience a new culture and develop skills to initiate new interdisciplinary projects.

**4PM Seminar:** After a lecture by an invited speaker, students give short talks on their research for those working in other fields, then discuss and evaluate each other's presentations.

### DATA

[Number of students recruited (For FY2026, number of students to be recruited)]

40 each (FY2019-FY2026)

[Number of people engaged in the program] 112

[Students' affiliated schools and departments]

3 graduate schools, 6 departments

<Graduate School of Science> Physics, Astronomy, Earth

and Planetary Science, Chemistry

<Graduate School of Engineering> Applied Physics

<Graduate School of Mathematical Sciences> Mathematical Sciences

[WISE Cooperating Institutions]

12 universities, 4 public research institutes, 3 companies

Nippon Steel Corp./NTT Corp./Macromill, Inc./École

Polytechnique/California Institute of Technology/UC

Berkeley/Korea Institute for Advanced Study/National

Taiwan University/ETH Zurich/Tsinghua University/Seoul

National University/Harvard University/Princeton

University/Peking University/ENS de Lyon/CERN/

Mathematical Sciences Research Institute/IHES/Paul

Scherrer Institute

[Number of program graduates (including anticipated graduates)] 25 (FY 2023), 29 (FY 2024), 43 (FY 2025)

[Career paths after graduation (including anticipated paths)] 12 to universities, 26 to private enterprise, 10 to public research institute, 1 to government agency, 5 to others\* Prospective graduates' career paths in FY2025 are undecided.

As of October 2025

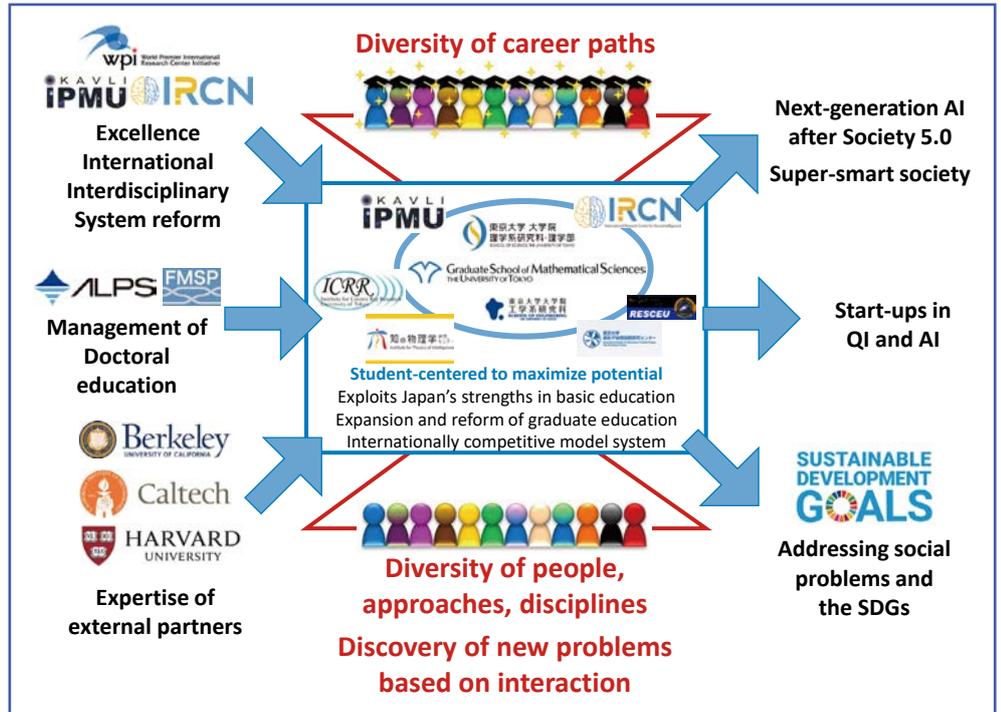
## Advancing social innovation through basic science

Mathematics provides the quantitative basis of all academic disciplines and physics underpins the fundamental laws of all of the natural sciences. It thus follows that physicists, mathematicians, and other specialists in the natural sciences play an essential role in the current shift to a knowledge-based society. Basic science specialists do not simply contribute to academic research in their respective fields; their work can also have a great impact on society. For example, the discovery of the DNA double helix, the invention of blue LEDs, and even the development of the internet would not have been possible without their contributions. Physics and mathematics will also be instrumental in creating the academic knowledge essential for the technological innovation needed to resolve the global challenges facing our society today.

With this in mind, the “Forefront Physics and Mathematics Program to Drive Transformation” (FoPM) uses education in state-of-the-art physics and mathematics to cultivate logical, flexible, and non-biased thinking. The program aims to foster specialists in the basic sciences who can exert a wide influence on science, technology, and social innovation. By challenging outdated customs and long-held beliefs within the education system, we also aim to take advantage of Japan’s fundamental strengths and develop a new internationally competitive model for graduate education in Japan.

## Connecting science and society through educational reform

FoPM builds on the University of Tokyo’s two World Premier International (WPI) Research Centers, the Kavli Institute for the Physics and Mathematics of the Universe (Kavli IPMU) and the International Research Center for Neurointelligence (IRCIN), which have contributed greatly to the globalization and reform of research systems at UTokyo and beyond. The program offers a curriculum in which students come into contact, engage in dialogue, and work closely with a diverse range of people and research fields. We make use of the expertise of our external partner institutions, require all students to experience research outside of Japan, and have introduced a lab rotation system in which students learn new skills in a second research group within UTokyo. These activities provide our students with a global perspective and enable them to understand the wider scientific context of their work. Moreover, to



Connecting people and research beyond traditional boundaries



The 2nd FoPM International Symposium held in FY2024 featured presentations by overseas speakers and program students from various fields. We also held the International Career Seminar at the same time. The event was a great success.

ensure that such international and interdisciplinary research proceeds smoothly, we offer a new seminar given by an expert in diversity education and regular seminars in which students mix casually with those with other scientific backgrounds and experience.

Within this diverse and inclusive environment, we provide courses designed to foster an outstanding level of specialist knowledge, as well as those in which students develop an awareness of how they could use this knowledge to solve complex global challenges. Through our “Academic Writing and Presentation” and “AI and Quantum Computing” courses, students acquire

valuable skills for their future careers, regardless of the path they choose to take after graduation. We aim to further open students’ eyes to the wealth of possibilities available to them outside of Japan and outside of academia with the program’s International Career Seminar.

By providing a place where students can refine their specialist skills, develop an awareness of the impact of their research, and grasp the multitude of career options available to them, FoPM aims to maximize students’ potential through diversity and dialogue in today’s uncertain world.

## World-leading Innovative Graduate Study: Advanced Business Law Program



先端ビジネスロー  
国際卓越大学院プログラム  
The World-leading Innovative Graduate Study:  
Advanced Business Law Program

**[Program Coordinator]** TAMURA Yoshiyuki (Professor, Graduate Schools for Law and Politics, The University of Tokyo)  
**[Fields of diplomas]** Doctor of Laws, Doctor of Engineering, Doctor of Philosophy in the field of Information Science and Technology, Doctor of Medical Science, Doctor of Philosophy in Management, Doctor of Philosophy in the field of public policy, Ph.D. (Interdisciplinary Information Studies)  
Name of the program to be noted: Name of the program to be noted: The World-leading Innovative Graduate Study: Advanced Business Law Program  
**[URL]** <https://ablp.j.u-tokyo.ac.jp/english>



### Message from the President



**FUJII Teruo**  
President The University of Tokyo

### Training interdisciplinary visionaries who lead in shaping policies concerning various business fields

These days, businesses face various problems brought by innovations in artificial intelligence, the Internet of Things, and biotechnologies. In order to produce talents who can propose solutions to these kinds of difficult challenges, the World-leading Innovative Graduate Study: Advanced Business Law Program (WINGS-ABLP) contains an ambitious curriculum promoting interdisciplinary education by fusing topics from the sciences, humanities, and liberal arts. Before becoming an official part of the WISE, the program that formed its basis was already equipping students to flourish as visionaries in various fields, such as academic, industrial, official, and legal circles. I expect that students who have completed the ABLP will lead policy-shaping in various fields to navigate this age of great change.

### Message from WISE Cooperating Institution

#### Be human capital with practical legal thinking for fast-paced tech era



**SATO Hideyuki**  
Vice President and CCO, Head of Legal & Corporate Governance Division, Head of Compliance Office, SoftBank Corp. / Attorney at Law (Japan, New York U.S.A.)

SoftBank Corp. is aiming to realize next-generation social infrastructure for a society that coexists with AI. In this era of rapid technological advancement, flexibility and creative adaptability are required in legal departments. We strongly hope that by sharing our company's efforts through this program, many people will acquire skills to think practically and from a legal standpoint when considering politics, the economy and technological advancements.

### Voices of Graduates

#### Solving Multi-Stakeholder Conflicts with Cutting-Edge Theory & Practice



**LAI Yichen**  
Associate Professor, Graduate School of Law, Tohoku University

In a world of increasing polarization and fragmentation, designing regulatory frameworks suited for civil society has become more challenging. This issue is particularly acute in business law. As an effective regulatory approach, not only statutory legislation (hard law) but also market-based discipline (soft law) is expected to play a crucial role. This program serves as a neutral platform for proposing policies that accommodate diverse stakeholder interests while fostering top-tier elites across industry, government, and academia.

### Good Practice



### Interdisciplinary and integrative education led by legal studies in the field of advanced business law

In compulsory courses, the Basic Seminar and the Progress Seminar for Advanced Business Law, we invite lecturers from graduate schools and collaborative institutions outside of the Graduate Schools for Law and Politics, to cultivate students' knowledge for interdisciplinary studies. Besides, instead of teaching the means-ends thinking approach, we try to enlighten students to take a progressive trial-and-error approach by using inclusive models based on the concept of law, to incorporate inherent values of law—freedom, equity and justice—into the approach and therefore convince the public. In addition, students with diverse educational backgrounds have enrolled in and gathered for this program. By sharing and discussing the concepts of their master's or doctoral theses, we are exploring and engaging in the interdisciplinary studies.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]** 7 each (FY2019-FY2026)

**[Number of people engaged in the program]** 55

**[Students' affiliated schools and departments]** 7 graduate schools, 15 departments

<Graduate Schools for Law and Politics> Legal and Political  
<Graduate School of Engineering> Architecture, Systems Innovation, Chemical System Engineering, Technology Management for Innovation

<Graduate School of Information Science and Technology> Computer Science, Mathematical Informatics, Mechano-Informatics

<Graduate School of Medicine> Internal Medicine, Reproductive, Developmental and Aging Sciences, Surgical Sciences, Medical Science

<Graduate School of Economics> Management

<Graduate School of Public Policy> International Public Policy

<Graduate School of Interdisciplinary Information Studies> Interdisciplinary Information Studies

### [WISE Cooperating Institutions]

5 universities, 13 enterprises, 1 public research institute  
Harvard Law School/ Peking University/ Seoul National University/ National Taiwan University/ University of Strasbourg/ Hitachi, Ltd./ FUJIFILM Corp./ SoftBank Corp./ LY Corporation/ Nippon Life Insurance Co./ Intellectual Property Department, Takeda Pharmaceutical Co., Ltd. / Google Japan G.K./ Thomson Reuters KK/ East Japan Railway Company/ Anderson Mori & Tomotsune/ TMI Associates/ Zelo/ SUGIMURA & Partners/ Institute for Monetary and Economic Studies, Bank of Japan

**[Number of program graduates (including anticipated graduates)]** 1 (FY 2021), 2 (FY 2022), 1 (FY 2023), 5 (FY 2024), 5 (FY 2025)

**[Career paths after graduation (including anticipated paths)]** 4 to universities, 1 to private enterprise, 2 to research institute, 2 to law firm, 5 to others

As of November 2025

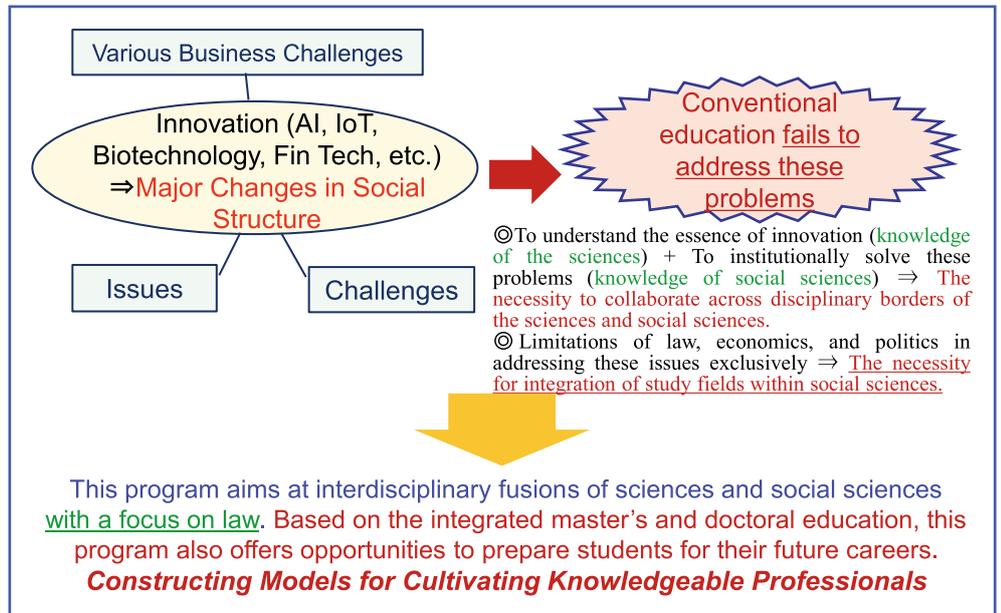
## Coping with various business challenges

The Fourth Industrial Revolution represented by AI, IoT and big data, and innovations such as biotechnologies, have raised various new problems and concerns of business. Conventional education, which has been divided into different academic disciplines, fails to address these issues. First, to understand the essence of innovation, knowledge of the sciences is necessary, meanwhile, to institutionally solve these business problems, knowledge of social sciences is required. Thus, it is necessary to collaborate across disciplinary borders of the sciences and social sciences. Second, since the academic fields of law, economics, and politics each have their own limitations in addressing these issues exclusively and separately, there is also a necessity for integration of study fields within social sciences.

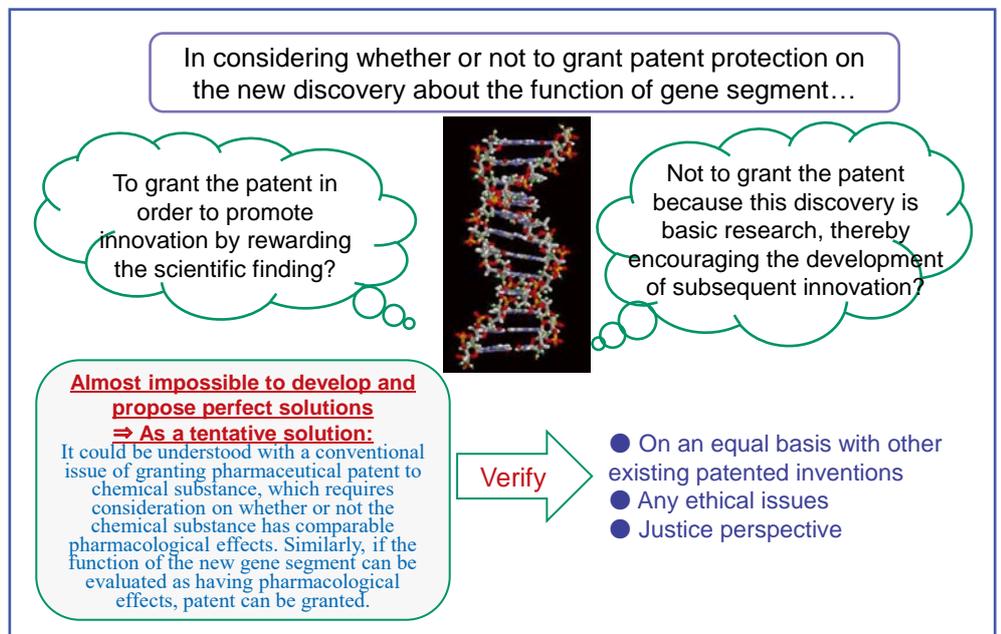
Even with the need of interdisciplinary fusions, problems occurring in the actual society are intricately intertwined, it is almost impossible to develop and propose perfect solutions to these complex problems from scratch. For example, in considering whether to grant patent protection on the discovery about the function of new gene segment, it is difficult to clearly determine which approach is better: to grant the patent in order to promote innovation by rewarding the scientific finding, or not to grant the patent because this discovery is basic research so as to encourage the development of subsequent innovation. Even though the determination is difficult, this problem can be legally reviewed. It could be understood with a conventional issue of granting pharmaceutical patent to chemical substance, which requires to consider whether chemical substance has comparable pharmacological effects. Taking the problem mentioned above as a question concerning the existence of effects, if the function of the new gene segment can be evaluated as having pharmacological effects, patent can be granted as a tentative solution to the problem. Meanwhile, law can justify it on an equal basis with other existing patented inventions, verify whether there are ethical issues from the perspective of justice.

## Producing the elites

This program provides the Basic Seminar for master's students and the Progress Seminar for doctoral students as compulsory subjects in order to reflect the aforementioned interdisciplinary fusion with a focus on law in the educational program. Aiming at fostering



To propose specific solutions to various challenges businesses face as innovations advance, an interdisciplinary approach that integrates sciences and social sciences, fuses different topics from social sciences is indispensable.



Law has the inherent characteristics that, even though new social problems have arisen, could use the existing legal system as a starting point, and deal with the issues by taking muddling through approach with gradual trial-and-error.

interdisciplinary synergy effects, the program assembles students and professors specializing in natural science, economics, politics and law. This program will guide students to learn specific research methods of law where trial-and-error could be used as a possible approach, and enlighten students with values such as freedom, equality, and justice that inherent in law.

We expect that students who have completed this program will flourish as elite practitioners, researchers, and policy planners to lead industry, government, and academia in the fields of business law.

## Engineering Education Program for Super Smart Society based on Advanced Quantum Science



[Program Coordinator] SAKAGUCHI Kei (Professor, School of Engineering, Institute of Science Tokyo)

[Fields of diplomas] Doctor of Engineering, Doctor of Science, Doctor of Philosophy

Name of the program to be noted: WISE (World-leading Innovative & Smart Education) Program for Super Smart Society

[URL] <https://www.wise-sss.titech.ac.jp/en>



### Message from the President



**OHTAKE Naoto**  
President and CEO, Institute of Science Tokyo

### Train “knowledge professionals” to lead a Super Smart Society through university-wide interdisciplinary education

Science Tokyo was established in October 2024 to pursue “science of and for the people, society, and planet.” It aims to contribute to advancement of research, education, and medical care along with society through self-directed collaboration.

With human resource and financial assistance from the Consortium partners and the university-wide support system, the program takes advantage of cyber/physical space technologies, an area in which Science Tokyo is leading the world, as well as cutting-edge fields such as quantum science and artificial intelligence, to offer interdisciplinary education. By offering such education, the University trains knowledge professionals, who can lead industry, government and academia in the forthcoming Super Smart Society.

### Message from WISE Cooperating Institution

#### Diverse, pioneering education program flourished year after year



**KYUMA Kazuo**  
President, National Agriculture and Food Research Organization

The WISE-SSS program has entered its seventh year, and I have been honored to support it since inception. I am confident the program has nurtured system-oriented talent with the insight to identify emerging needs and the ability to define and solve complex problems - qualities highly sought after in Japan. Its diverse, pioneering educational initiatives have flourished year after year, and I look forward to seeing its graduates lead in realizing a super-smart society (Society 5.0).

### Voices of Graduates

#### Invaluable experience in developing a new perspective on research



**OKADA Yuya**  
Tokyu Construction

When I started my doctoral studies, I discovered that WISE-SSS collaborates with companies in various fields. This inspired me to join. I was able to discuss my field of expertise with researchers and corporate staff from different fields, which made me think about how I can apply my knowledge and skills to society. However, as I began working in society, opportunities to engage in interdisciplinary research diminished. For this reason, I recognize my experience at WISE-SSS as invaluable in developing a new perspective on research.

### Good Practice



#### Interdisciplinary research team to bring about Super Smart Society - Researches in academia meeting social needs from industry

The interdisciplinary matching workshop hosted by Academy of Super Smart Society aims to link the needs of member organizations of the Super Smart Society Promotion Consortium with technology and talent from Science Tokyo faculty and students to form interdisciplinary research teams. With help from team advisors, students will perform research activities for their super smart society innovation research project with the goal of realizing a super smart society. Interdisciplinary collaboration opportunities are increasing in research fields. One such example is combining technology of highly-sensitive quantum sensing with a study of protecting corrosion of steel bars inside reinforced concrete structures by applying an electric current to the structure.

### DATA

[Number of students recruited (For FY2026, number of students to be recruited)] 35(FY2020), 25 each(FY2021-FY2025)

[Number of people engaged in the program] 129

[Students' affiliated schools and departments]

6 Schools, 13 Departments

<School of Engineering> Mechanical Engineering, Systems and Control Engineering, Electrical and Electronic Engineering, Information and Communications Engineering, Industrial Engineering and Economics

<School of Science> Physics

<School of Computing> Computer Science

<School of Life Science and Technology> Life Science and Technology

<School of Environment and Society> Architecture and Building Engineering, Civil and

Environmental Engineering, Transdisciplinary Science and Engineering, Social and Human Sciences

<School of Materials and Chemical Technology>Material Science and Engineering

[WISE Cooperating Institutions]

6 public research institutes, 2 local public bodies, 1 administrative body, 1 incorporated foundation, 19 corporations, 24 overseas universities, etc.

National Agriculture and Food Research Organization/ National Institutes for Quantum and Radiological Science and Technology/ RIKEN Center for Advanced Intelligence Project/ Japan Agency for Marine-Earth Science and Technology/ NICT Wireless Networks Research Center/ AIST Information Technology and Human Factors/ Kawasaki City/ Ota City/ Ministry of Agriculture, Forestry and Fisheries/ Ocean Policy Research Institute/ JTEKT Corporation/ NEC Corporation/ NSK Ltd./ Yaskawa Electric

Corporation/ Azbil Corporation/ Yokogawa Electric Corporation/ Koden Electronics Co., Ltd./ KDDI Corporation/ SoftBank Corp./ Huawei Japan/ DENSO Corporation/ LG Japan/ Kawasaki Heavy Industries, Ltd./ Kubota/ Komatsu Ltd./ Mitsubishi Electric/ Central Japan Railway Company/ Rakuten Mobile/ Matsuda/ Google LLC/ CEA Leti/ Georgia Institute of Technology/ National Taiwan University of Science and Technology/ University of Twente/ University of Rome Tor Vergata/ The Ohio State University/ Thammasat University Thailand/ University of Glasgow/ Technical University of Munich/ Fraunhofer Heinrich-Hertz-Institute /University of Sydney/ Institute for Infocomm Research/ Cornell University/ Yonsei University/ RWTH Aachen University/ Airgain Inc./ Japanese Chamber of Commerce & Industry of NY/ University of California/ Irvine/ University of Melbourne/ National Tsing Hua University/ The Pennsylvania State University/ Bandung Institute of Technology

[Number of program graduates (including anticipated graduates)] 2 (FY2021), 5 (FY2022), 11 (FY2023), 8 (FY2024), 25 (FY 2025)

[Career paths after graduation (including anticipated paths)] 13 to universities, 17 to private enterprise, 3 to public research institute ( not including the students scheduled to graduate in March 2026 )

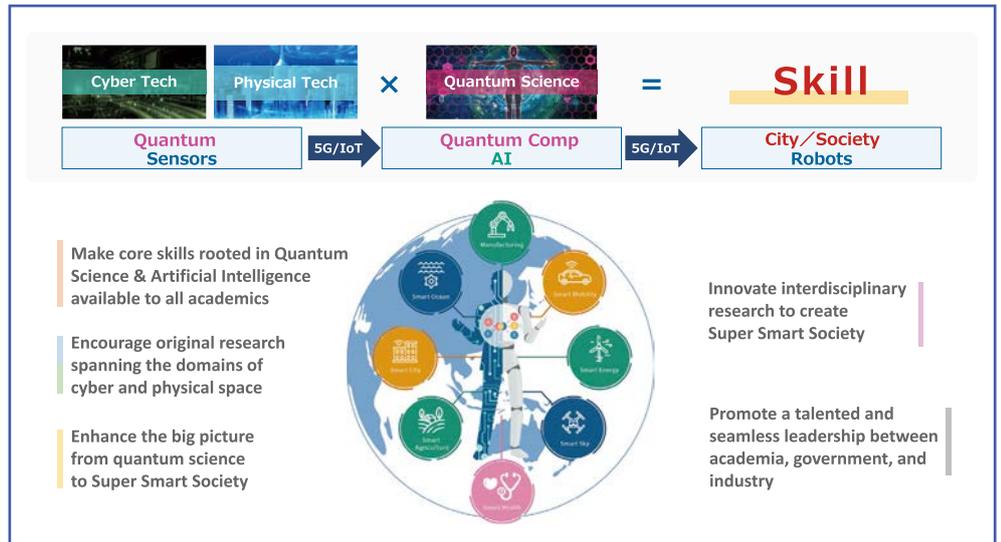
As of October 2025

## Image of graduates: Who leads a Super Smart Society?

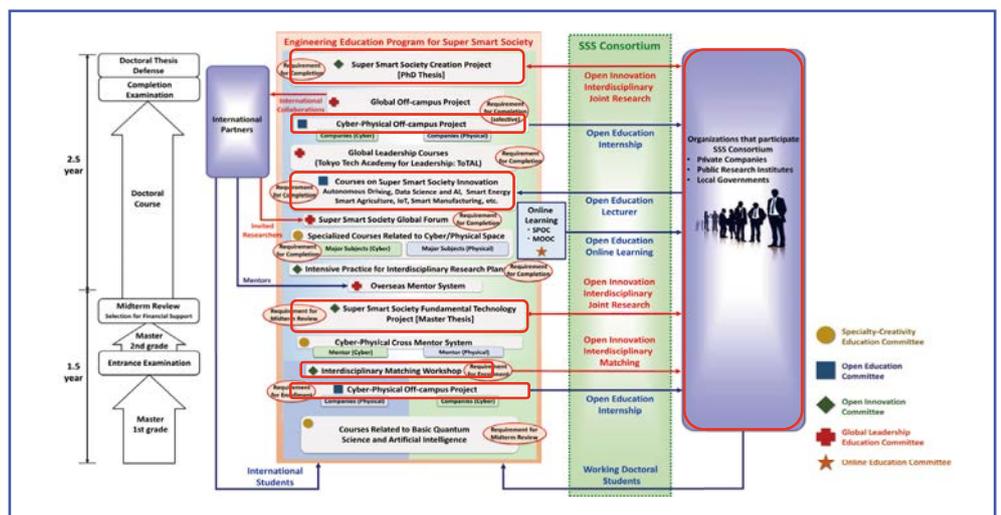
Leaders of the forthcoming Super Smart Society (SSS) must be able to integrate state-of-the-art quantum science with cyber and physical space technologies. For example, in SSS, sensor data collected via 5G/IoT is analyzed by AI to control robotics. In this process, sensors must be replaced with ultra-high sensitivity quantum sensors to allow real-time analysis of big data by executing AI on quantum computers. By integrating quantum science, it is possible to advance society into SSS. Against such a social background, the University established “the WISE Program for Super Smart Society”, an integrated master & doctoral program. As shown in Fig. 1, the program trains individuals who lead SSS with 1) core skills rooted in quantum science and artificial intelligence, 2) ability to create original research spanning the domains of cyber and physical spaces, 3) ability to grasp the big picture from quantum science to SSS, 4) ability to solve social issues through innovative interdisciplinary research, and 5) talented and seamless leadership between academia, government, and industry. The graduates from the program are expected to contribute in the domain of SSS engineering related to the future earth such as 1) smart agriculture, 2) smart city, 3) smart ocean, 4) smart manufacturing, 5) smart mobility, 6) smart energy and 7) smart sky.

## Features of WISE Program for Super Smart Society

The program is the core of the University’s SSS Promotion Project, and the main feature is to provide education with 77 faculty members collaboratively across 8 graduate schools, the institutes and the academy as well as Medical & Dental Sciences. Thus, interdisciplinary education is realized across the following fields: physical space technology in the School of Engineering, cyber space technology in the School of Computing, and quantum science in the School of Science. This is an exceptional education program that fosters specialization and originality across these fields. Furthermore, in the field of SSS, it is necessary to train talent through social collaborative education (open education) and interdisciplinary research (open innovation). Therefore, the SSS Promotion Consortium was established in 2018, which consists of state institutes, private companies and local governments. As an open innovation platform, several SSS research & education fields were created in the University and are utilized in both education and research. Figure 2 overviews the



(Figure 1) Image of Program Graduates



(Figure 2) WISE Program for Super Smart Society

Education Program for a Super Smart Society. Between the University’s engineering education program (orange) and the participating organizations of the Consortium (blue), the SSS Promotion Consortium (green) acts as a bridge to realize open education (blue arrow) to cultivate a broad perspective and open innovation (red arrow) to develop problem solving ability. By providing global leadership education in collaboration with overseas partner institutions, training global leaders with specialized knowledge and high ambition is another feature of the program.

## Development of WISE (World-leading Innovative & Smart Education) Program to foster AI (Artificial Intelligence) Professionals for Marine Industries



[Program Coordinator] MAITA Masashi (Executive Director, Professor, Tokyo University of Marine Science and Technology)

[Fields of diplomas] Doctor of Philosophy or Doctor of Engineering Degree

Name of the program to be noted: Graduate Program in Marine AI and Data Science.

[URL] <https://www.g2.kaiyodai.ac.jp/marine-ai/eng/>



### Message from the President



**ISEKI Toshio**  
President, Tokyo University of Marine Science and Technology

### Fostering industry-ready professionals who will bring innovation to marine industries

The rapid evolution of AI technology in recent years is ushering in a new era in which the research and development cycle will be dramatically accelerated by "AI for Science". Now it has entered its final year, our university's WISE Program aims to foster innovative individuals who can implement AI technology in the marine industry. Through this unique scheme, which matches students' ideas with companies' needs, we are able to send enterprising students not confined to their chosen disciplines to work at actual research and development sites, where they gain invaluable experience through internships. We would like to express our deepest gratitude to the institutions that make up the Marine AI Consortium for their continued support. Going forward, we will take the various schemes for training PhD students that we have developed in the WISE Program and utilize them in reforming the entire graduate school.

#### Message from WISE Cooperating Institution

#### We train experts who transform society by leading the marine industry



**TABATA Hideo**  
Chairman, IDEA Consultants, Inc.

Real business fields are eagerly awaiting flexible thinking that leads to innovation. Utilization of the sea for industrial purposes such as fisheries, logistics, and resource/energy production will accelerate the accumulation of diverse data. We hope that the WISE Program produces the next generation of professionals who can understand the scientific meaning of such big data and make full use of information sharing technology to solve marine-related problems. We hope to contribute significantly to the Program.

#### Student's Voice

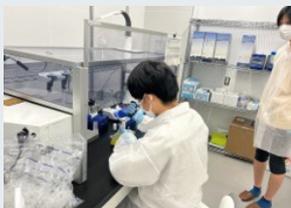
#### Supporting ambitious research activities with an enriching environment



**ETO Akira**  
2st year of doctoral program at Course of Applied Marine Environmental Studies

Marine ecosystems are a scientific frontier that remains shrouded in mystery. I am engaged in research that will act as a bridge between information science and marine ecology, such as the automation of feeding habit analysis through deep learning, as there is still a divide between the two disciplines. The WISE program appealed to me because it provides a wide range of support - from R&D to career development - and financial assistance, allowing me to take on new challenges with confidence.

### Good Practice



#### Promoting the enhancement of students' AI skills and research using AI in the marine field through Marine AI Student Study Sessions and internships at Marine AI Consortium partners

TUMSAT is implementing the following initiatives to promote the enhancement of students' AI skills and research using AI in the marine field.

- ① Marine AI Student Study Sessions Plus: The event is open to researchers and developers from related industries and research institutions to provide a forum for more active exchange on the latest knowledge and technologies related to marine AI.
- ② Internships at Marine AI Consortium partner institutes: Through the Matching Week, students participate in AI social implementation projects on marine issues. It is an opportunity for them to acquire insights that they could never experience on campus, such as processes and modeling in settings where AI is socially implemented.

### DATA

[Number of students recruited (For FY2026, number of students to be recruited)]

10 each (FY2020-FY2021), 15 each (FY2022-2026)

[Number of people engaged in the program] 89

[Students' affiliated schools and departments]

1 graduate school, 9 departments

<Graduate School of Marine Science and Technology> Marine Life Sciences, Food Science and Technology, Marine Resources and Environment, Marine System Engineering, Marine Resources and

Environment, Marine Policy and Management, Marine System Engineering, Maritime Technology and Logistics, Safety Management in Food Supply Chain, Applied Marine Biosciences, Applied Marine Environmental Studies

[WISE Cooperating Institutions]

3 public research institutes, 1 university, 12 companies, 2 corporation foundations, 1 non profit organization  
Japan Agency for Marine-Earth Science and Technology / Japan Fisheries

Research and Education Agency / National Institute of Maritime, Port and Aviation Technology / Technical University of Denmark / IDEA Consultants, Inc. / BEMAC Corporation / Innoqua Inc. / Nissui Corporation / Maruha Nichiro Corporation / FURUNO ELECTRIC CO., LTD. / Japan Radio Co., Ltd. / MTI Co., Ltd. / ZABOOON Inc. / TSUNEISHI AKISHIMA LABORATORY Co., Ltd. / SANYO TECHNO MARINE/MizLinX Inc./Ocean Policy Research Institute of Sasakawa Peace Foundation / Japan Weather Association / NPO Marine Technologist

[Number of program graduates (including anticipated graduates)] 2FY2024, 3FY2025

[Career paths after graduation (including anticipated paths)] 2 to public research institute, 1 to other (educational institute)

As of November 2025

## Development of AI professionals for marine industries

It is important to enhance Japan's presence in global marine industries as the marine-related working population decreases in modern society by producing individuals who create diverse values and novel systems that contribute to the realization of "Society 5.0 (ultra-smart society)." TUMSAT fosters the development of Artificial Intelligence (AI) Professionals and innovators. We train highly skilled experts who are not only literate in big data (BD) analysis and machine learning (ML) but also can assess AI performance. Based on expertise and field experiences gained at TUMSAT, they will drive the social implementation of AI and marine-related policies.

The WISE Program is established as a 5-year integrated graduate school course at TUMSAT.

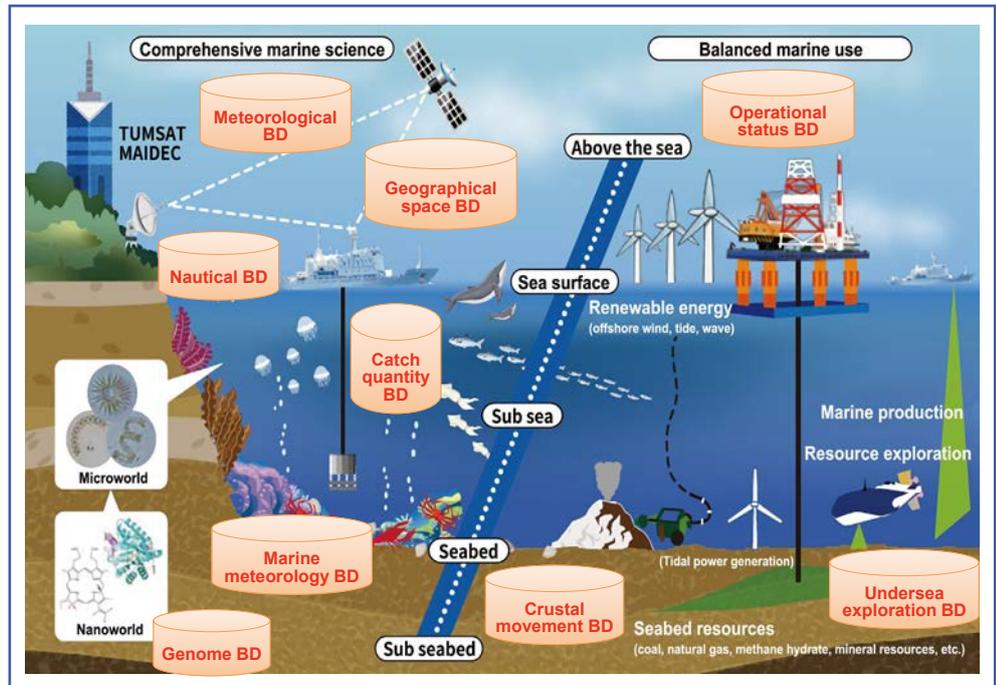
The master's program provides lectures on BD analysis and ML to develop students' technical literacy, while practical skills beyond the courses are gained at MAIDEC. At the end of the master's program, students' basic ability to conduct doctoral dissertation research is assessed (Qualifying Exam). Through these efforts, we strive to develop specialists who can implement their knowledge and expertise gained at graduate school.

The doctoral program provides two introductory courses on AI and society. Since AI is expected to be highly reliable, the Course on Advanced Reliability Assessments focuses on performance evaluation methods for AI. The Course on Social Implementation Impacts Assessment discusses the impact of AI on society. In addition, the doctoral program cultures students' capabilities necessary to lead the social implementation of AI by providing opportunities to participate in real business projects at partner institutes (in-residence projects) and fieldwork.

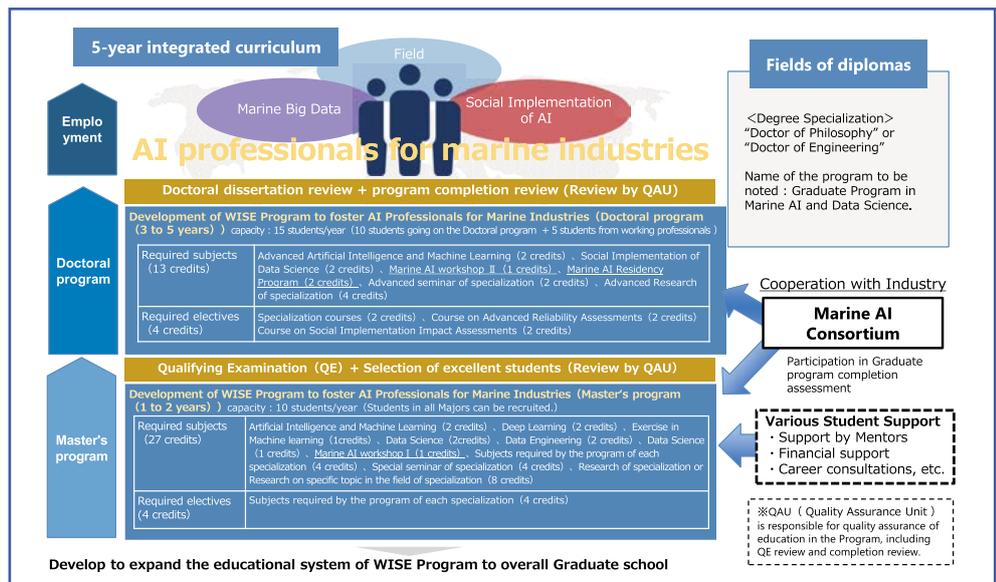
Through these outcomes, Graduate Program in Marine AI and Data Science, a cross-organisational, was established in FY2024.

## Education and research system to sustain excellence

TUMSAT has established an education and research system that spans wide-ranging fields such as marine, maritime, and fisheries. Students can learn about (1) the development of autonomous navigation vessels desired by the marine industry, (2) ocean observations using artificial satellites and Argo float data, (3) analysis of genomic information of aquatic organisms, (4) management of marine resources, and (5) establishment of next-generation smart fisheries. On November 1, 2019, we established the Marine AI Development and



Collect and analyze wide-ranging big data from the air to sub-seabed in a cross-sectional manner via industry-government-academia collaboration. Develop and provide an educational program on big data analysis and AI development assessments.



Educational system for the development of AI Professionals for Marine Industries

Evaluation Center (MAIDEC) to fully utilize state-of-the-art nautical training vessels such as Shinyo-Maru, which is a strength of TUMSAT, the Field Science Center, and advanced navigation systems. In fiscal year 2020, we established a marine AI consortium with partner institutes to advance the WISE Program via industry-government-academia collaboration and conducted the second AI training and qualification examination for students and participants from partner institutes.

In such a distinguished education and research system, WISE Program students aim to be advanced technical experts who can propose sophisticated solutions to complex challenges such as watch task automation of

navigation officers, self-propelled vessels capable of automatic takeoff and landing, labor-savings in fishing and aquaculture using robots, and realization of high-production smart fisheries using automated and optimized water quality management based on weather forecasts and ocean information systems.

Fostering AI experts in marine industry will improve our entire society by stabilizing the food supply while conserving natural resources and solving labor shortages. When social implementation of AI is realized, the achieved high valued services can be expanded overseas and contribute to Sustainable Development Goals (SDGs).

## WISE Program for Nano-Precision Medicine, Science and Technology



**[Program Coordinator]** HANAYAMA Rikinari (Professor, Nano Life Science Institute, Kanazawa University)  
**[Fields of diplomas]** Doctor of Philosophy in Science, Doctor of Philosophy in Engineering, Doctor of Philosophy in Medicine, Doctor of Philosophy in Pharmacy, Doctor of Philosophy in Pharmaceutical Sciences, Doctor of Philosophy in Health Sciences, Doctor of Philosophy in Nano Science or Doctor of Philosophy  
 Name of the program to be noted: Completion of WISE Program for Nano-Precision Medicine, Science and Technology  
**[URL]** <https://nano-wise.w3.kanazawa-u.ac.jp/en/>



### Message from the President



**WADA Takashi**  
President, Kanazawa University

### Fostering innovative scientists who open up unexplored areas, and overcoming the challenges of the present and the future

Kanazawa University, as a research university dedicated to education, while opening up its doors to both local and global society, is promoting graduate education reform under the vision of contributing to society through “future-oriented intelligence”—wisdom that explores and overcomes future challenges. Building on the world-class research capabilities of the WPI-Nano Life Science Institute, the program cultivates doctoral talents by collaborating with industry and international universities. Our goal is to foster an innovative mindset among students and equip them with the ability to overcome social challenges and create new value.

As the flagship initiative of university-wide graduate education reform, the program advances both the enhancement of graduate education and the support for doctoral students. Through co-creation with diverse sectors of society, it will further develop efforts to nurture and produce doctoral talents.

### Message from WISE Cooperating Institution

#### We support development of talent via industry-academia collaboration!

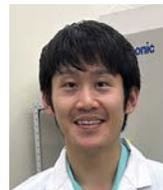


**MATSUMURA Hiroyuki**  
Principal Researcher, Biomass Innovation Center, Daicel Corporation / Professor, Kanazawa University

We provide program instructors and host internships in order to foster “business persons who will lead innovation” and “entrepreneurs who will lead the social implementation of new knowledge”. During the internship, the students proposed new methods for analysis and our employees were also inspired by the way they expressed ideas on an equal footing with our own staff. We will support the development of talented individuals who can play an active role in society through the strong “bonds” of industry-academia collaboration.

### Voices of Graduates

#### Beyond Graduation! A Program to Foster “Nano” Mindset



**NISHIDE Goro**  
Cell & Biology Department, Regenerative Medicine Manufacturing System Division, SHIBUYA CORPORATION

This program allowed me to explore a wide range of scientific fields beyond my specialization, fostering flexible thinking and a broad perspective. Through interactions with diverse researchers, I learned the ability to consider issues from multiple angles and gained a viewpoint that allows me to perceive things at the “Nano” level. Currently, I am engaged in developing technologies for regenerative medicine, aiming to bridge research and practical application while addressing global challenges from a nanoscale standpoint.

### Good Practice



#### Pre-program for prospective students to learn about the program's vision and expose themselves to the expansive possibilities of inter-field research and development

In the pre-program lectures/exercises designed for prospective students, participants from diverse academic backgrounds form groups to discuss and present solutions to health-related challenges in collaboration with faculty members. Additionally, the university president and representatives from partner companies deliver lectures on essential qualities for leadership and the skills required in real-world development settings. Through hands-on experiences such as operating cutting-edge nano-analysis equipment and using VR-based medical simulations, students are exposed to technologies from various fields and explore new possibilities emerging from interdisciplinary integration.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**  
12 each (FY2020-FY2025)

**[Number of people engaged in the program]** 76

**[Students' affiliated schools and departments]**

4 graduate schools, 19 departments

<Graduate School of Frontier Science Initiative> Convergence Science, Transdisciplinary Sciences, Nano Life Science  
 <Graduate School of Natural Science and Technology> Mathematical and

Physical Sciences, Material Chemistry, Mechanical Science and Engineering, Electrical Engineering and Computer Science, Environmental Design, Natural System, Frontier Engineering, Electrical, Information and Communication Engineering, Geosciences and Civil Engineering, Biological Science and Technology

<Graduate School of Medical Sciences> Medical Science, Medicine, Pharmacy, Pharmaceutical Sciences, Health Sciences

<Graduate School of Advanced Preventive Medical Sciences> Advanced Preventive Medical Science

**[WISE Cooperating Institutions]**

2 universities, 12 companies, 1 general incorporated association, 1 public institution

Imperial College London / University of British Columbia / Nikon Solutions Co., Ltd. / Pfizer R&D Japan G.K. / Ricoh Co., Ltd. / FUJIFILM Wako

Pure Chemical Corporation / Olympus Corporation / Daicel Corporation

/ Hamamatsu Photonics K.K. / Shibuya Corporation / Carepro, Inc. / Kopernik Japan / Nissan Chemical Corporation / Novartis Japan / Ishikawa Prefectural Police Scientific Reserch Institute / ACTREE Corporation

**[Number of program graduates (including anticipated graduates)]** 4(FY2022), 3(FY2023), 9(FY2024), 10(FY2025)

**[Career paths after graduation (including anticipated paths)]** 8 to universities, 9 to private enterprise, 1 to medical practitioner

As of November 2025

## Experts who can use nanotechnology to solve health issues

In 2015, the United States proposed “Precision Medicine,” which aims to provide optimal treatment tailored to individual patients through advanced genetic analysis technologies. While this concept has gained global attention, many diseases remain unresolved. We believe one major reason is the lack of understanding of the dynamics and structures of disease-causing substances at the nanoscale within the human body.

To address this, our program focuses on five key health challenges facing humanity: cancer, lifestyle-related diseases, neurological diseases, diseases caused by fine particles, and diseases caused by nanomaterials. Students will study “nano-precision medicine/nano-precision science and technology” by leveraging the cutting-edge research environment and achievements of the Nano Life Science Institute (WPI), a world-class research hub where top-level researchers gather. They will explore how their own fields of expertise intersect with nanoscience and nanotechnology in medical and scientific applications.

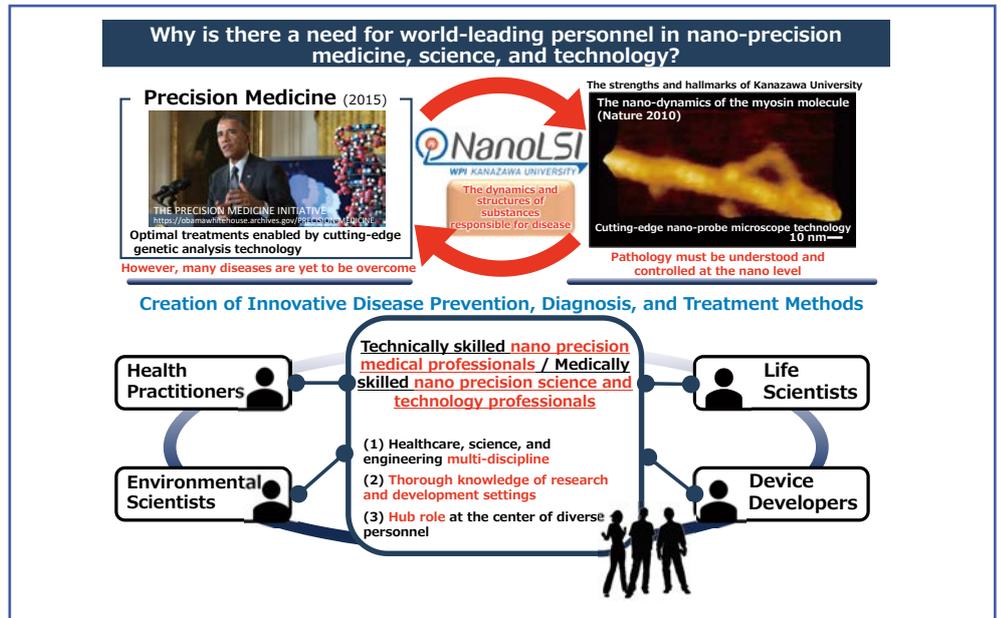
Furthermore, through training in mathematical data science and innovation management, students will deepen their understanding of the significance of these technologies in Society 5.0 and how they can drive societal transformation.

By applying this knowledge and technology, the program aims to cultivate doctoral-level professionals capable of driving innovation to build a foundation for human health in Society 5.0—namely, “technically skilled nano precision medical professionals” and “medically skilled nano precision science and technology professionals,” who will pioneer innovative methods for disease prevention, diagnosis, and treatment through nanoscale understanding and control of pathological conditions.

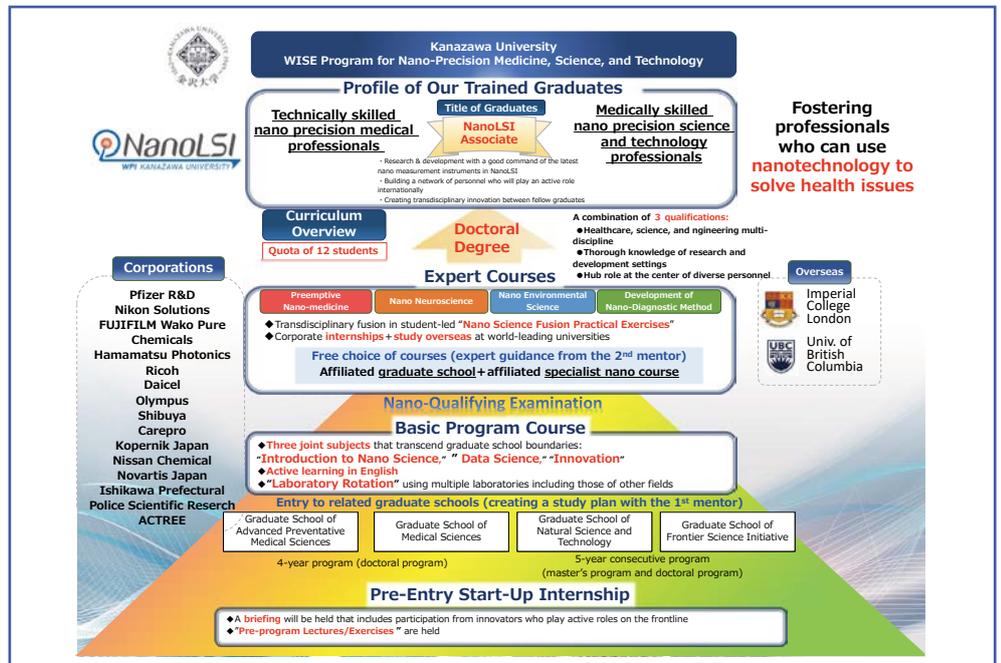
## Creating innovation that continues from pre- to post-program

This program is a cross-disciplinary doctoral degree initiative spanning four graduate schools: the Graduate School of Frontier Science Initiative, the Graduate School of Natural Science and Technology, the Graduate School of Medical Sciences, and the Graduate School of Advanced Preventive Medical Sciences. It aims to foster innovation-driven talent through an integrated educational approach that combines science, engineering, and medicine, centered on “nano-precision medicine/nano-precision science and technology.”

Before the official start of the program, newly admitted students participate in the “pre-program lectures/exercises.” These lectures, involving program



We have achieved world-leading research results in understanding and controlling diseases at the nanoscale. Building on this strength, we will develop professionals who can create innovative preventive, diagnostic and therapeutic methods.



This program includes a basic program course fostering broad perspectives and creativity, and expert courses enhancing global vision and expertise. It promotes seamless fusion innovation through diverse initiatives.

faculty, senior students, and representatives from partner companies, help students share the program’s vision and experience the potential of interdisciplinary collaboration.

After enrollment, all students take a basic program course in mathematical data science, innovation management, and core subjects such as nanometrology and nanomaterials science, which support the program’s interdisciplinary research. These courses cultivate broad perspectives and originality through exposure to real-world examples of fusion and applied research. Students then proceed to one of four expert courses: preemptive nano-medicine, nano neuroscience, nano environmental science, and development of nano-diagnostic method. In

these tracks, students explore how nanoscience applies to their respective fields and lead interdisciplinary research projects under faculty guidance.

Upon completion, graduates earn a doctoral degree and the title of “NanoLSI Associate”, enabling them to conduct research using the university’s state-of-the-art nano-measurement equipment. This qualification enables them to serve as bridges between the program and their future employers, helping build a robust human network and fostering innovation through collaboration among graduates, current students, and faculty.

## Convolution of Informatics and Biomedical Sciences on Glocal Alliances



**[Program Coordinator]** KATSUNO Masahisa  
**[Vice Dean, Professor, Graduate School of Medicine, Nagoya University]**  
**[Fields of diplomas]** PhD in Medicine, PhD in Nursing Science, PhD in Radiological and Medical Laboratory Sciences, PhD in Physical and Occupational Therapy, PhD in Informatics, PhD in Pharmaceutical Sciences, PhD in Bioagriculture, PhD in Agricultural Sciences  
 Name of the program to be noted: Name of the program to be noted: WISE Program, Informatics and Biomedical Sciences  
**[URL]** <https://cibog.med.nagoya-u.ac.jp/en/>



### Message from the President



**SUGIYAMA Naoshi**  
President, Nagoya University

### Expectations for the creation of new fields and the production of human resources for the safety and well-being of society as a whole

The increase in diseases such as cancer and dementia associated with the aging of society has become a worldwide social problem, including in developing countries. This is particularly serious in Japan, where the super-aging population and declining birth rate are pronounced, and the country is facing a critical situation of ballooning medical and nursing care costs and a shrinking working population. The key to solving these issues is to shift from personalized medicine to personalized prevention, and to realize the safety and well-being of society as a whole, it is necessary to analyze life science big data at multiple levels, from molecules to human society, and to create a new field that promotes understanding of pathological conditions and development of preventive methods for unmet diseases. The CIBoG program is making every effort to promote its goals, which are to promote research that integrates informatics and biomedical science, implement disease prevention methods in society, and produce human resources who can optimize social well-being.

### Message from WISE Cooperating Institution

#### Expectations for producing the high-level “knowledge professionals” who convolute informatics and biomedicine



**KAMIGUCHI Hidenori**  
Senior Director, Drug Metabolism and Pharmacokinetics Research Laboratories  
Preclinical and Translational Sciences, Research

Drug discovery through translational research requires analysis from huge amounts of big data. In other words, the fusion of informatics and biomedical sciences practiced in the CIBoG program is expected to advance drug discovery research. We hope that our lectures, discussions with researchers, and on-site company visits to the Shonan Health Innovation Park (Shonan iPark) will give students a sense of the practical application of the program in society.

### Student's Voice

#### The path to learning and social contribution with a broader perspective



**KIMURA kazue**  
Accenture Japan Ltd

One of the key strengths of this program is its diversity, with a multidisciplinary curriculum, students from six different departments, and collaborations with companies and research institutions. This program provides a dynamic environment where proactive engagement in a wide range of lectures and events opens doors.

Currently, I am leveraging the multifaceted perspectives gained from this program to harness data and create new value, aiming to contribute to society.

### Good Practice



**CIBoG Retreat (NAGOYA Global Retreat)** Researchers from Nagoya and surrounding areas can gather to present their research and build meaningful relationships with each other.

More than 150 graduate students and young researchers from Nagoya University and neighboring research institutes will participate in the CIBoG Retreat, where they will present their research and have a meaningful relationship with each other. The NAGOYA Global Retreat started in 2008, and was renamed the CIBoG Retreat in 2019, and has been held 17 times since then until 2024. All the events are conducted in English, and graduate students and young researchers can train themselves to give presentations and answer questions in English. The organizing committee, consisting CIBoG students, manages the event while gradually updating the content.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]** 10 (FY2019), 23 (FY2020), 19 (FY2021), 25 (FY2022), 29 (FY2023), 31 (FY2024), 30 (FY2025), 30 (FY2026)

**[Number of people engaged in the program]** 116

**[Students' affiliated schools and departments]**

Nagoya University 4 graduate schools, 10 departments

Gifu University 2 graduate schools, 2 departments

Nagoya University

<Graduate School of Medicine> Integrated Medicine, International Collaborative Program in Comprehensive Medical Science between Nagoya University and the University of Adelaide, International Collaborative Program in Comprehensive Medical

Science between Nagoya University and Lund University, International Collaborative Program in Comprehensive Medical Science between Nagoya University and the University of Freiburg, Integrated Health Sciences, Medical Sciences

<Graduate School of Bioagriculture> Applied Biosciences

<Graduate School of Informatics> Computing and Software Systems, Intelligent Systems

<Graduate School of Pharmaceutical Sciences> Basic Medicinal Sciences

Gifu University

<Graduate School of Natural Science and Technology> Life Science and Chemistry

<The United Graduate School of Agricultural Science> Science of Biological Resource

**[WISE Cooperating Institutions]**

10 universities, 5 public research institutes, 12 companies

Gifu University/National Institute for Physiological Sciences/Aichi Cancer Center/National Center for Geriatrics and Gerontology/Aichi Developmental Disability Center/Institute for Developmental Research/Institute of Statistical Mathematics/University of Adelaide/Lund University/Albert-Ludwigs-Universität Freiburg/University of Nottingham/The Chinese University of Hong Kong/University of Bologna/LMU Munchen/Korea University/Monash University/Shimadzu Corporation/Novartis Pharma/NVIDIA Corporation/Eisai Co., Ltd./Olympus Corporation/RaQualia Pharma/Sumitomo Pharma Co., Ltd./Mitsubishi Tanabe Pharma Corporation/Takeda Pharmaceutical Co., Ltd./CBmed/Hitachi Co., Ltd./Astellas Pharma Inc

**[Number of program graduates (including anticipated graduates)]** 5 (FY2023), 12 (FY2024), 26 (FY2025)

**[Career paths after graduation (including anticipated paths)]** 8 to universities, 10 to private enterprise, 2 to public research institute, 4 to doctors, 19 to others

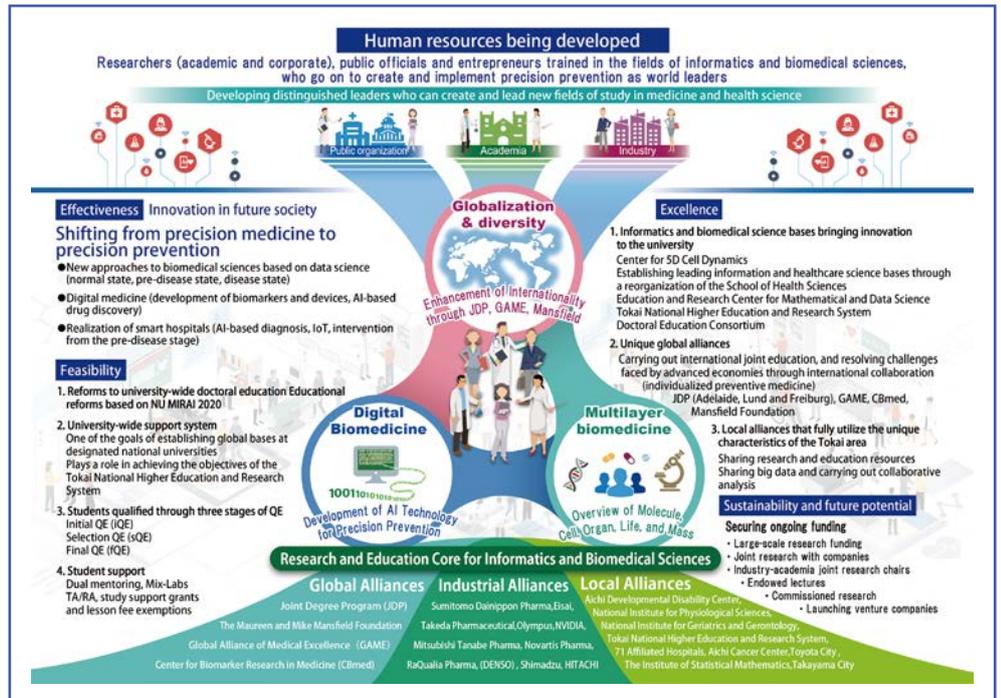
As of November 2025

## From personalized prevention to social implementation

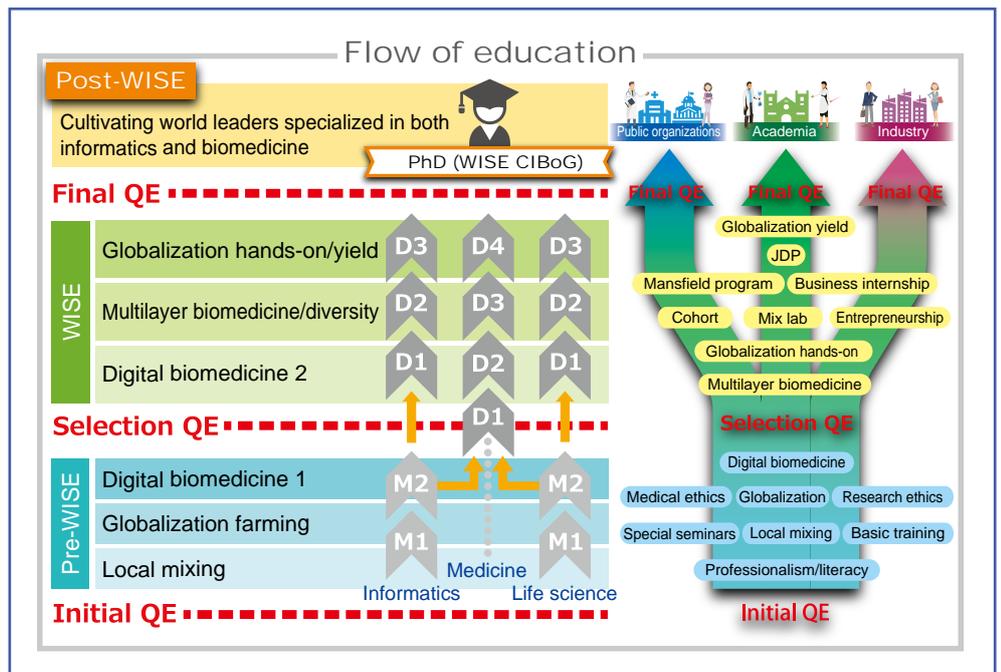
Currently, increases in cancer, dementia, and other diseases associated with a population aging have become a problem, and this includes developing countries. The situation is particularly serious in Japan, which between a super-aged society and a rapidly declining birthrate is facing a critical situation with ballooning medical and nursing care costs and a shrinking working population. The key to resolving these issues is to shift from personalized medicine to personalized prevention. To achieve this, life science big data must be analyzed at multiple levels from the molecules to human society itself and allow understanding of the pathogenesis of undiagnosed diseases and develop preventive methods. In order to achieve this goal, informatics and biomedical sciences must work in tandem. However, due to the high degree of specialization in both medical sciences and informatics the rapid pace of technological development, there is an overwhelming lack of people capable of conducting such integrated research and applying the results of that research to society. Many of challenges we face in medicine today are no longer limited to national borders as is evident from our struggles against global scale infectious diseases. Development on a global scale is essential to collect and analyze big data and implement the findings to society. Thus, global awareness and diversity are vital to developing human resources. The CIBoG program, therefore, aims to foster the development of researchers, administrators, and entrepreneurs with deep insight into informatics and biomedical sciences who can build a collaborative research system for big data analysis, create personalized prevention systems, and promote their social implementation.

## To develop globally competitive interdisciplinary research

CIBoG is based on 3 basic educational policies or pillars: Digital Biomedical Sciences, Multilayered Biomedical Sciences, and International and Diversity Education. During the five-year program (four years for medical doctors), students enrolled in the CIBoG program acquire proficiency in the three field that constitute the main pillars, through both basic science study and clinical practice. Graduates gain the ability to develop integrated medical and informatics research projects at a global level by applying what they learn in the CIBoG program. Digital Biomedical Sciences is a form of medical research that utilizes mathematical



The CIBoG program create a research base for informatics and biomedical sciences by collaborating with regional institutes to develop a new field of biomedical sciences that aims to implement individual prevention on the global society.



The CIBoG program recruits students in informatics and biomedical science, and supports them with financial aids to foster global leaders who can create and promote a new field integrated informatics and biomedical science.

informatics. In CIBoG, the Graduate School of Medicine and the Graduate School of Informatics will not only work together to support graduate student education and research, but also to strengthen digital medicine education through the reorganization of the Department of Health Sciences and participation of the Institute of Statistical Mathematics, sure to prove a driving force behind this new graduate education program. In addition, the Center for 5D Cellular Dynamics (C5CD), a center for integrated medicine and informatics analysis, has been

established at the Tsurumai Campus. Through close collaboration between the wet and dry laboratories, C5CD will promote joint research among medical informatics research that integrates various related fields such as medicine, molecular biology, and mathematical sciences, with a focus on immunology, and promote spatio-temporal understanding of complex biological phenomena on a cell-by-cell basis.

## Graduate Program for Medical Innovation



**[Program Coordinator]** WATANABE Dai (Professor, Graduate School of Medicine, Kyoto University)  
**[Fields of diplomas]** Doctor of Medicine, Doctor of Medical Science, Doctor of Public Health, Doctor of Human Health Sciences, Doctor of Pharmaceutical Sciences, Doctor of Biomedical Sciences, Doctor of Bioinformatics and Chemical Genomics, Doctor of Medicinal Frontier Sciences  
 Name of the program to be noted: Graduate Program for Medical Innovation  
**[URL]** <https://www.mip.med.kyoto-u.ac.jp/en/>



### Message from the President



**MINATO Nagahiro**  
President, Kyoto University

### Through the WISE Program, Kyoto University seeks to cultivate advanced “knowledge professionals” who will play key roles in industry, academia, and government.

In 2021, Kyoto University established the Division of Graduate Studies to enhance its liberal arts and general education courses, and centrally manage its diverse graduate degree programs. The new division promotes collaboration and cooperation among graduate schools in diverse aspects of education and research.

It will ensure that the university continues to provide unique high-quality programs under the government’s Doctoral Program for World-leading Innovative & Smart Education (WISE Program). WISE programs are provided in close cooperation with leading companies and world-class research institutes in Japan and leading universities around the world with the aim of cultivating advanced “knowledge professionals” and promoting the reform of the university’s graduate schools.

### Message from WISE Cooperating Institution

#### The program fosters great researchers who are adaptable and diverse



**MUKOUYAMA Yoh-suke**  
National Institutes of Health,  
Senior Investigator

Scientific and medical innovation is driven by an environment where people of diverse cultures, races, sexes, experiences, and lifestyles work together. In the United States, there are many laboratories where diverse perspectives are developed through passionate discussions. We will make our best effort to contribute to developing excellent researchers by helping students enjoy their studies in organizations that promote diversity and inclusion.

### Student’s Voice

#### From Basic Research to Drug Discovery: Pioneering New Challenges



**HIKOSAKA Momoka**  
Ph.D. Program (Year 2),  
Laboratory of Drug Discovery  
Medicine, Department of  
Medical Science, Graduate  
School of Medicine, Kyoto  
University

I have always aspired to contribute to the treatment of psychiatric and neurodegenerative disorders, yet I realized the challenge of translating basic research into therapeutics. Through this program, I became more aware of the real-world applications of my research. With generous financial support for my research activities and an opportunity to intern at an overseas laboratory, I am steadily moving toward future drug development. I will continue to devote myself to advancing medical innovation.

### Good Practice



#### Capturing students’ needs in a timely fashion Promoting interactions between students and junior researchers by holding various seminars upon request from students

A seminar on career paths was held this year for students who were thinking about their future or seeking information on career options. In this seminar, individual consultations were held to provide advice and answer questions. This event was well-received and is planned to be held again next year.

In addition, the MIP (Graduate Program for Medical Innovation) offers lectures by editors of prestigious scientific journals. The MIP also provides tutorials on how to write papers and make presentations in English. This is in response to students’ concerns regarding their insufficient experience writing papers and making presentations in English.

These opportunities are also provided to students of other departments and junior researchers. They are effective in providing MIP students with chances to interact with other disciplines.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

20 each (FY2020-FY2025)

**[Number of people engaged in the program]** 81

**[Students’ affiliated schools and departments]**

2 graduate schools, 8 departments

(Graduate School of Medicine) Medicine, Medical Science, Public Health, Human Health Sciences

(Graduate School of Pharmaceutical Sciences) Pharmaceutical Sciences,

Biomedical Sciences, Bioinformatics and Chemical Genomics, Medicinal Frontier Sciences

**[WISE Cooperating Institutions]**

3Universities, 14Companies, 8Research institutes

University of California, San Diego/University of Toronto/National Taiwan University/The FIRC Institute of Molecular Oncology/National Institutes of Health/Max-Planck Institute/NeuroSpin/RIKEN/Institute of Biomedical Research and Innovation, Foundation for Biomedical Research and Innovation at Kobe/Tazuke Kofukai Medical Research Institute Kitano

Hospital/Bioorganic Research Institute, Suntory Foundation for Life Sciences/NTT DATA Corporation/Deloitte Tohmatsu Consulting LLC./mixi, Inc./KBBM, Inc./MICIN, Inc./Eisai Co., Ltd./ Daiichi Sankyo Co., Ltd./ Chugai Pharmaceutical Co., Ltd./ Asahi Kasei Pharma Corporation/ Sumitomo Dainippon Pharma Co., Ltd./ONO PHARMACEUTICAL CO., LTD./Mitsubishi Tanabe Pharma Corporation/KYORIN Pharmaceutical Co.,Ltd./Chordia Therapeutics, Inc.

**[Number of program graduates (including anticipated graduates)]** 4 (FY 2022), 6 (FY 2023), 9 (FY 2024), 22 (FY 2025)

**[Career paths after graduation (including anticipated paths)]** 3 to universities, 10 to private enterprise, 1 to public research institute, 1 to medical practitioner, 1 to start-up business, 3 to others

As of November 2025

## Education for Next-Generation Medical Innovators

In order for medical and healthcare innovation in Japan to be accelerated and disseminated worldwide, a system for training outstanding personnel capable of undertaking cutting-edge research and development, needs to be established strategically. Based on this idea, the Graduate Program for Medical Innovation aims to train both MD (medical doctor) students and non-MD students to be medical innovators with a global mindset. This will be achieved through collaboration between accomplished medical, pharmaceutical, and health science researchers at Kyoto University.

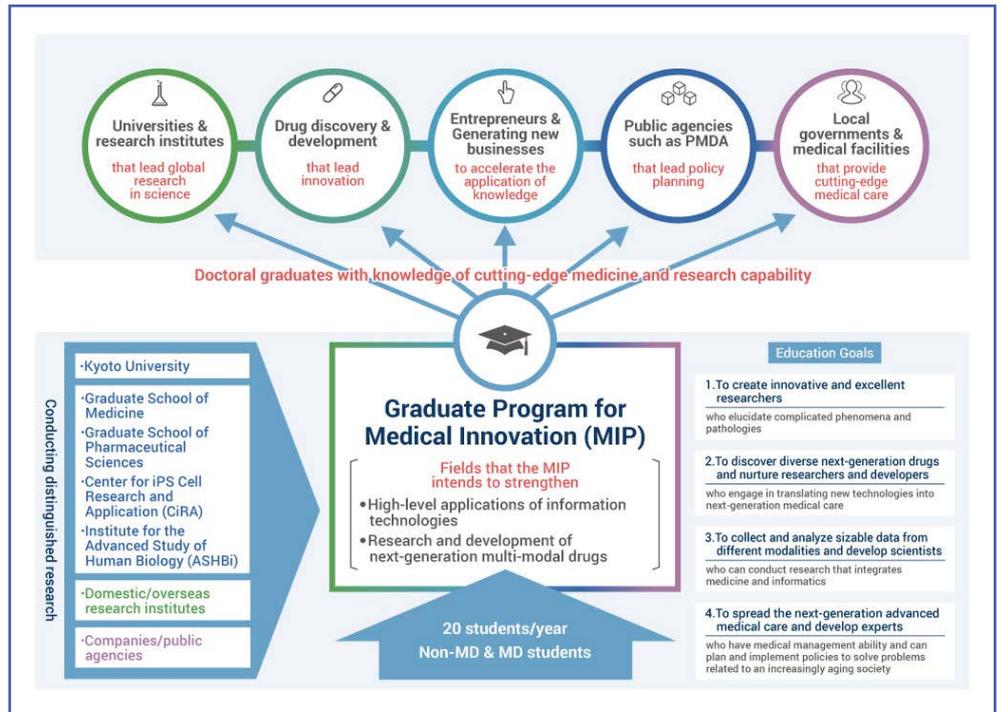
### [Education Goals]

1. To create innovative and excellent researchers who elucidate complicated phenomena and pathologies
2. To discover diverse next-generation drugs and nurture researchers and developers who engage in translating new technologies into next-generation medical care
3. To collect and analyze sizable data from different modalities and develop scientists who can conduct research that integrates medicine and informatics
4. To spread the next-generation advanced medical care and develop experts who have medical management ability and can plan and implement policies to solve problems related to an increasingly aging society

## Features of the program

Kyoto University has been pursuing the world's highest level of research and has produced internationally-recognized researchers including Nobel laureates. Curriculums that take advantage of this research-based strength of the university have been established by the Graduate School of Medicine, Graduate School of Pharmaceutical Sciences, Center for iPS Cell Research and Application (CiRA), and Institute for the Advanced Study of Human Biology (ASHBi), operating under the World Premier International Research Initiative (WPI).

The program aims for students to acquire systematic medical knowledge as well as advanced and creative research capabilities according to their diverse backgrounds and interests. It also aims to cultivate a comprehensive perspective of the social implementation



Education Goals of the Graduate Program for Medical Innovation

	M1	M2	D1	D2	D3/D4	
Research work	Research for Master's dissertation		Research for doctoral dissertation			Thesis defense & Final Screening and Certificate for the Program
	Pre-research		(Interdisciplinary) Joint research project			
Course work	Graduate Courses for Integrated Research Training ("cross-stage type [basic/applied]" colloquium)					
	Core medical education courses					
	Group of core courses		Group of courses for career development and improvement of skills			
	Practical lectures by outside lecturers such as corporate researchers		Promotion of interactions and exchange matching of research and human resources with students/university researchers			
Activities for career development	Internship in Japan and abroad					
International brain circulation Exchange of human resources with industry and government	Industry-academia matching academic exchange meeting/company tour					
	Reiwa Konoe Juku					

Curriculum of the Graduate Program for Medical Innovation

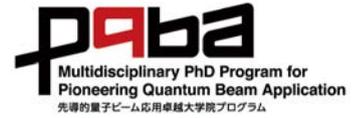
of next-generation medical treatment by interacting with leading experts in industry, government and academia in Japan and overseas.

### [Program Features]

1. The program will build an advanced education and research system through an academic-industrial cooperation that covers everything from basic research to social implementation of the results.
2. To meet the diverse needs of students, a diverse group of faculty members will be assigned to run the program, and young mentor faculty members will provide detailed research guidance.
3. In collaboration with related departments that have world-class research achievements and long-

established expertise in industry-government-academia collaboration, the program will establish a research system that works together with domestic and international research institutions as well as industry and government.

## Multidisciplinary PhD Program for Pioneering Quantum Beam Application



**[Program Coordinator]** NAKANO Takashi (Director, Research Center for Nuclear Physics, The University of Osaka)  
**[Fields of diplomas]** Ph.D. (Physical Science), Ph.D. (Medicine), Ph.D. (Health Sciences), Ph.D. (Informatics), Ph.D.  
 Name of the program to be noted: Name of the program to be noted: Completion of Multidisciplinary PhD Program for Pioneering Quantum Beam Application  
**[URL]** <https://www.rcnp.osaka-u.ac.jp/pqba/en/index.html>



### Message from the President



**KUMANOGO Atsushi**  
President, the University of Osaka

### Fostering Powerful Leaders Who Create New Value and Boldly Tackle Diverse Social Challenges

Guided by its motto, "Live Locally, Grow Globally," the University of Osaka aims to address various social challenges. We achieve this by integrating world-leading research outcomes into convergence knowledge for robust social implementation. To realize this vision, we believe it is essential to create new value through a dual approach: deepening expertise within specialized fields while pioneering transdisciplinary endeavors that explore new academic domains.

This program is specifically designed to create such new value. By integrating insights from quantum beam technology with fundamental research in fields such as science, medicine, and information science, we aim to develop groundbreaking solutions. A prime example is targeted alpha therapy, which seeks to overcome intractable advanced cancers.

We anticipate that graduates of this program will emerge as opinion leaders, equipped with a global perspective cultivated through a compulsory overseas internship, ready to make a significant impact on the world.

### Message from WISE Cooperating Institution

#### Anticipate polymaths who expedite new value creation with accelerators.



**SAITO Naohito**  
Director of Institute of Particle and Nuclear Studies

Japan has been leading the world with numerous advanced accelerator facilities. Many organizations that own such facilities are participating in the program. Although accelerators hold great promise to solve social issues, their potential is not fully utilized at present. We anticipate cultivating exceptional individuals who can lead the world by creating new value with accelerators.

### Voices of Graduates

#### Getting advices from experts in different disciplines



**CHONG Tsun Him**  
Special Postdoctoral Researcher, RIKEN Nishina Center for Accelerator-Based science

I joined the program because its perspective on beam application matches my research interest, which is developing a new type of particle accelerator. In practice, the double mentor system allowed me to discuss my research with professor from different scientific discipline, who gave me precious advices on my master thesis and helped me to make further progress. This program provided me with valuable experience, including both domestic and overseas internships, which helped shape my career as a researcher.

### Good Practice



### Investments for the future

Sparking middle and high school students' interest in science is crucial to further cultivate talent in this program. Therefore, the University of Osaka works in collaboration with "Mebae Tekijuku", which is offered to elementary, middle, and high school students, and "SEEDS" which is offered to high school students. Doctoral candidates in PQBA participate as TAs and mentors. Approximately half of the participants in "Mebae Tekijuku" and "SEEDS" are female students. We expect that nurturing exceptional young talent will continue to cultivate future leaders and improve gender balance in scientific fields.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

16(FY2020),14(FY2021),15(FY2022),19(FY2023),18(FY2024),15(FY2025),15(FY2026)

**[Number of people engaged in the program]** 136

**[Students' affiliated schools and departments]**

3graduate schools, 6departments

<Graduate School of Science>Physics, Chemistry, Macromolecular Science

<Graduate School of Medicine>Medicine, Health Sciences

<Graduate School of Information Science and Technology>Information Systems

Engineering

**[WISE Cooperating Institutions]**

4 universities, 14 private sectors, 6 national/local research institutes, 3 overseas universities, 1 overseas research

High Energy Accelerator Research Organization Institute of Materials Structure Science/High Energy Accelerator Research Organization Institute of Particles and Nuclear Studies/National Institutes for Quantum and Radiological Science and Technology/Research Center for Accelerator and Radioisotope Science, Tohoku University/J-PARC/Kyoto Institute of Technology/Graduate School of Informatics,

Kyoto University/Isotope Science Center, The University of Tokyo/Kavli Institute for the Physics and Mathematics of the Universe, The University of Tokyo/RIKEN/TRIUMF/The University of Queensland/Heidelberg University Hospital/Heinrich Heine University Dusseldorf/National Institute of Health Science/ATOX/Telix Pharmaceuticals Japan/SOCIONEXT/Hitachi, Ltd./Nihon Medi-Physics Co, Ltd./Sumitomo Heavy Industries, Ltd./FUJIFILM Toyama Chemicals Co., Ltd./Kyoto Medical Technology/EPSON Corporation/Metal Technology Co. Ltd./Toshiba Electronic Devices & Storage Corporation/Japan Radioisotope Association/Anderson Mōri & Tomotsune/Alpha Fusion Inc./ Japan Post Insurance Co.Ltd.

**[Number of program graduates (including anticipated graduates)]** 10(FY 2023), 8(FY 2024),10(FY2025)

**[Career paths after graduation (including anticipated paths)]** 9 to universities, 11 to private enterprise, 5 to public research institute, 1 to government agency, 2 to others

As of November 2025

## Pioneering quantum beam application to solve social issues

Confronted with the reality of rapid aging and a low birthrate, our country must address the urgent tasks to extend the healthy life expectancy and realize a super-smart society with a clear vision of Society 5.0. Academia, including universities, are expected to address this issue and create new value through interdisciplinary cooperation. In this context, quantum beams created by accelerators are being applied in innovative ways to solve problems of modern society. Radioactive isotopes (RIs), which support nuclear medicine, have been essential in cancer research. RIs played a critical role in the rapid evolution of gamma imaging technology and targeted alpha-particle therapy. In addition, cosmic rays contribute to soft errors, which were originally discussed in devices operating in harsh environments such as space. However, due to the rapid development of the Internet of Things (IoT), cosmic ray-induced soft errors have also become an issue on the ground. Therefore, accelerated testing using quantum beams is urgently needed to evaluate and implement countermeasures.

This program aims to “continuously develop human resources to lead the creation of next-generation quantum beam application technologies” by targeting students mainly in the fields of science, medicine, and information technology in cooperation with domestic and foreign universities, institutions, and companies related to various quantum beams, including radionuclides, neutrons, and muons.

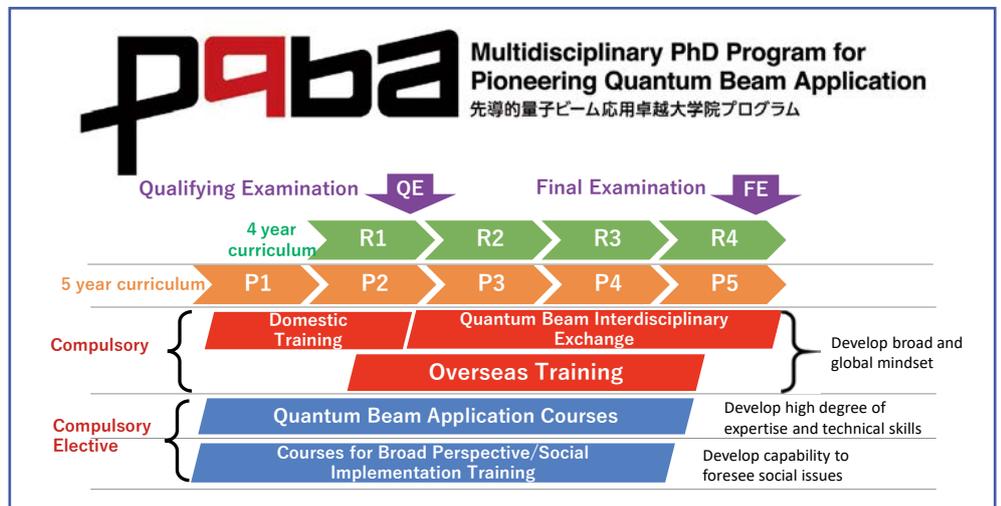
## Curriculum and attributes of individuals in the program

Individuals in the program are expected to become keenly aware of social issues and explore the treasure trove of past research to create innovative key technologies for social implementation of new value. By gaining a high degree of expertise, a broad perspective, and advanced global communication skills, they are expected to thrive as global leaders and “knowledge professionals” within all sectors (industry, academia, and government). They will possess the following attributes:

- \* Ability to consider risks in terms of human sustainability
- \* Significant academic and technical knowledge in a specialized field
- \* Ability to consider phenomena on various scales and academic fields
- \* Experience and knowledge of advanced experiments and calculations in different fields



Characteristic quantum beam and expertise to create new value to solve social issues.



We offer a curriculum to acquire a high degree of expertise, an ability to understand from a broad perspective, and global communication skills.

\* Ability to evaluate risks and benefits of the implementation of advanced technologies

\* Ability to develop and capitalize on human networks by taking a leadership role in international activities

To educate individuals who possess these attributes, the program offers a curriculum focusing on interdisciplinary and international joint research. In particular, overseas training is mandatory. Overseas internship are selected based on the recommendations of the affiliated laboratory or referrals from the program. In the past, we have sent students to universities and research facilities in Europe, North America, Australia, Asia, and other regions for overseas training. The duration of the overseas internship varies from one month to one year, depending on the individual's circumstances.

## Multi-Scope • Energy WISE Professionals



Academy of Energy and Informatics

[Program Coordinator] IHARA Manabu (Professor, School of Materials and Chemical Technology, Institute of Science Tokyo)

[Fields of diplomas] Doctor of Engineering, Doctor of Science, Doctor of Philosophy

Name of the program to be noted: Academy of Energy and Informatics program

[URL] <https://www.infosyenergy.titech.ac.jp/Academy/en/>



### Message from the President



**OHTAKE Naoto**  
President and CEO, Institute of Science Tokyo

### University-wide efforts to empower students to become “Multi-scope Energy WISE” professionals

Science Tokyo was established in October 2024 to pursue “science of and for the people, society, and planet.” It aims to contribute to advancement of research, education, and medical care along with society through self-directed collaboration.

This program is designed to help students build a solid understanding of multi-disciplinary energy science (specialization), pursue research and development by taking advantage of big data science (combination of AI analysis and data science), and eventually develop into individuals capable of leading and designing a new energy society based on technologies.

In order to continue this program after the designated WISE program period ends, the former Graduate Major in Energy Science and Engineering was reorganized to establish the Graduate Major in Energy Science and Informatics in AY 2024.

### Message from WISE Cooperating Institution

#### Fostering future leaders to tackle clean-energy for carbon neutrality



**KUBOTA Nobuhiko**  
Managing Executive Officer, General Manager of Corporate Research and Development Division, IHI Corporation

The establishment of a global energy system to realize a carbon-neutral society is an important theme. In particular, building a value chain from production to utilization of clean energy, including the use of hydrogen and ammonia, is an issue that must be tackled in cooperation with industry, government, and academia in an all-Japan effort. We look forward to developing future leaders who are able to set their own tasks and goals for this challenge and who will work toward solutions by involving others in the process.

### Student's Voice

#### Shaping the future of energy research through diverse perspectives



**KOSASA Ryohei**  
School of Materials and Chemical Technology, Department of Chemical Science and Engineering, Energy Science and Informatics, 2nd-year doctoral student

Addressing energy issues requires a wide range of expertise, from device development to system control. Through this program, which brings together knowledge from research institutions and companies in Japan and abroad, I am cultivating the creativity needed to tackle social challenges. At the international forum held for affiliated researchers, open and candid discussions across languages and cultures allow me to broaden my perspectives and gain insights I could never acquire solely within my own lab.

### Good Practice



The Academy of Energy and Informatics organizes the International Forum, where students apply knowledge and design-thinking to connect the worlds of energy and information.

Each year, more than 100 participants, including Science Tokyo students as well as faculty and students from partner institutions and universities in Japan and overseas, come together in a dynamic, international conference-style setting to engage in lectures by prominent researchers, collaborative student workshops, and tours of energy-related facilities.

Past forums have been held in Tokyo, Hawaii, and Bali (pictured). The 2025 event it will take place over five days in December on Phuket Island, Thailand.

### DATA

[Number of students recruited (For FY2026, number of students to be recruited)]

30 (FY2022), 25 each (FY2022-FY2026)

[Number of people engaged in the program] 120

[Students' affiliated schools and departments]

4 schools, 7 department

<School of Science> Chemistry

<School of Engineering> Mechanical Engineering, Systems and Control Engineering, Electrical and Electronic Engineering

<School of Materials and Chemical Technology> Materials Science and Engineering, Chemical Science and Engineering

<School of Environment and Society> Transdisciplinary Science and Engineering

[WISE Cooperating Institutions]

23 companies, 5 public institutions, 16 domestic and overseas universities

IHI Corporation/Azbil Corporation/IMRA JAPAN CO., LTD./Iwatani Corporation/ENEOS Corporation/NTT DATA CUSTOMER SERVICE Corporation/NTT DATA BUSINESS SYSTEMS CORPORATION/KAJIMA CORPORATION/Kawasaki Heavy Industries, Ltd./JFE Engineering Corporation/Mitsui O.S.K. Lines, Ltd./SUMITOMO CORPORATION/Chiyoda Corporation/Deloitte Touche Tohmatsu Limited./Tokyo Electric Power Company Holdings, Incorporated/TOSHIBA CORPORATION • Toshiba Energy Systems & Solutions Corporation/Tokuyama Corporation/TOYO KANETSU K.K./BROTHER INDUSTRIES, LTD./Resonac Corporation/Mizuho Research & Technologies, Ltd./Mitsui Chemicals Inc./Mitsubishi Electric Corporation/Japan International Cooperation Agency(JICA)/CEA-Liten(France)/

National Institute of Advanced Industrial Science and Technology(AIST)/Thailand National Science and Technology Development Agency(Thailand)/Kawasaki City/HITOTSUBASHI UNIVERSITY(Japan)/Georgia Institute of Technology(USA)/Imperial College London(UK)/INSA de Lyon(France)/Korea Advanced Institute of Science and Technology(Korea)/Massachusetts Institute of Technology(USA)/Nanyang Technological University(Singapore)/Princeton University(USA)/RWTH Aachen University(Germany)/Tsinghua University(China)/University of California, Davis(USA)/University of California, Santa Barbara(USA)/University of Cambridge, Judge Business School(UK)/University of Stuttgart(Germany)/Uppsala University(Sweden)/The University of Sydney(Australia)

[Number of program graduates (including anticipated graduates)] 7 (FY 2023), 21 (FY 2024), 23 (FY 2025)

[Career paths after graduation (including anticipated paths)] 9 to universities, 29 to private enterprises, 6 to public research institutes, 5 to other, 2 to government agency As of November 2025

## Multi-scope · Energy WISE Professionals shape energy's future

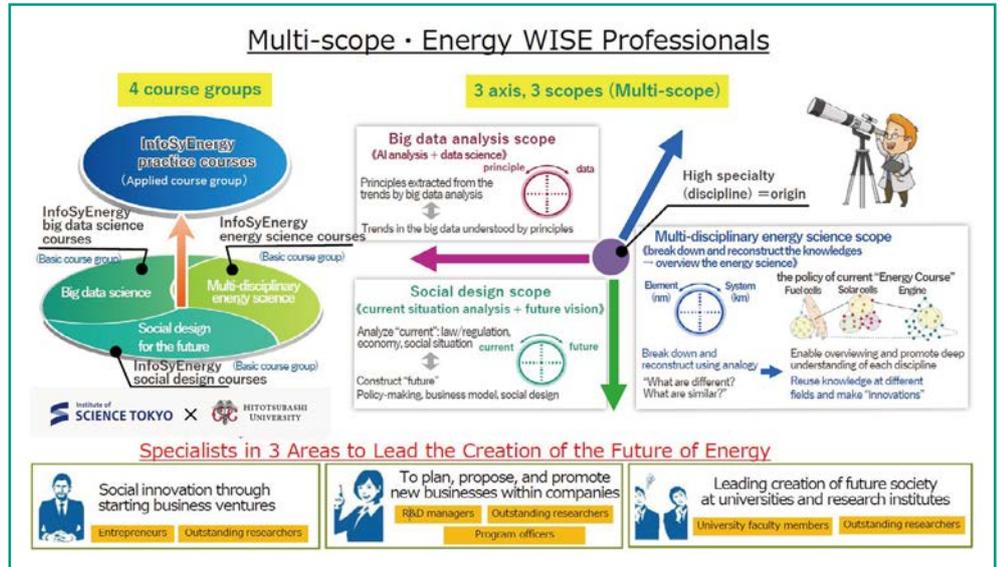
Supplying sustainable energy while curbing climate change factors is an urgent mission for the global community. In order to build a new energy society, we must transform to a sustainable low-carbon and decarbonized energy society through the integration of AI analysis and big data science with energy science. To achieve this goal, we define “ambient energy society” as an energy society in which consumers can balance the environment and the economy without being conscious of their energy choices or environmental behavior, and we aim to achieve this in cooperation with industries.

The newly established program, Tokyo Tech Academy of Energy and Informatics, encourages students to research and develop on energy devices/systems/scenarios by utilizing “big data science” based on scientific principles of energy, and aim to produce “Multi-scope Energy WISE Professionals”, who will design a new energy society and take leadership to bring about transformations. “Multi-scope · Energy WISE Professionals” leading the creation of a future energy society are ones who possess abilities: 1. Social innovation through starting business ventures, 2. Planning, proposing, and promoting new businesses within companies, 3. Leading creation of a future society at universities and research institutes. Throughout the collaboration with industries, we develop outstanding talents who have three scopes: 1. Multi-disciplinary Energy Science Scope (profound expertise), 2. Big Data Analysis Scope (expertise and skills), 3. Social Design Scope (expertise and humanity).

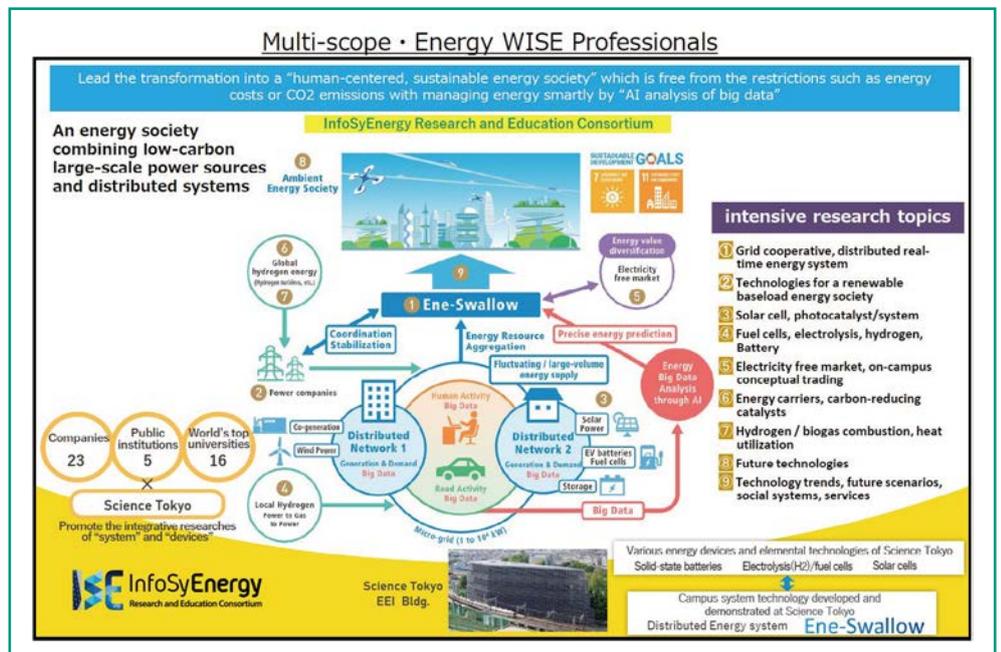
## Liaison with InfoSyEnergy Research and Education Consortium

Prior to the establishment of the Academy of Energy and Informatics program, the “InfoSyEnergy Research and Education Consortium” (InfoSyEnergy: a coined word meaning Informatics x Synergy x Energy), an industry liaison hub for research and education, was established in November 2019 as a framework to enhance feasibility and continuous development of the program in its mission to train Multi-scope · Energy WISE Professionals.

Joint research projects between industry and academia have typically been carried out on a one-on-one basis between university labs and industries. However, we aim to build a platform that can propose and implement a number of collaborations of various scales and levels. A major feature of this program is the close cooperation with the consortium, with promoting the program in collaboration with Science Tokyo faculty



Cultivate “3 scopes” by “4 course groups” collaborating with “InfoSyEnergy Research and Education Consortium”



Research topics and collaborating organizations for cultivating Multi-scope · Energy WISE Professionals in InfoSyEnergy Research and Education Consortium

members and representatives selecting from Consortium member institutions. By inviting renowned researchers from overseas institutions including the world's 16 top universities and mentors from consortium member institutions, we conduct discussions and compile research outcomes into reports, aiming to strengthen the feasibility of the concept and enhance graduate school education. Furthermore, the consortium's membership system enhances the financial aspect related to program operations, and also provides students with research opportunities and financial support through joint research projects with industries.

In addition, this program offers subjects related to new business creation, energy policy planning.

## Graduate Program for Lifestyle Revolution based on Transdisciplinary Mobility Innovation



**TMI** Transdisciplinary Mobility Innovation

**[Program Coordinator]** KAWAGUCHI Nobuo (Professor, Institutes of Innovation for Future Society, Nagoya University)  
**[Fields of diplomas]** Doctor of Arts, Doctor of Laws, Doctor of Comparative Laws, Doctor of Modern Laws, Doctor of Economics, Doctor of Informatics, Doctor of Engineering, Doctor of Environmental Studies, Doctor of Sciences, Doctor of Architecture, Doctor of Sociology, Doctor of Geography  
 Name of the program to be noted: Transdisciplinary Mobility Innovation Graduate Program  
**[URL]** <https://www.tmi.mirai.nagoya-u.ac.jp/en/>



### Message from the President



**SUGIYAMA Naoshi**  
President, Nagoya University

### Fostering human resources for social change who will lead lifestyle revolution

Recent technological innovations in information and mobility have minimized the cost of traveling in time and space and have created major changes since the Industrial Revolution. On the other hand, due to global issues such as pandemics, resource depletion, and climate variability, complication of social issues such as declining birthrate and aging population, and diversification of values such as diversity and inclusion, the conventional technology-led approach to “realizing a rich lifestyle” is becoming difficult. In order to lead a “lifestyle revolution” where people can freely choose various ways of life, it is necessary to have specialized human resources who can collaborate with different fields. Through this program, students with diverse specialties will work hard toward the goal of mobility innovation. I sincerely expect the nurturing of human resources who will lead social change through research results, and I will do my utmost to promote the program.

### Message from WISE Cooperating Institution

#### Creation of KANDO from mobilities beyond their functional role



**IIDA Minoru**  
Fellow, Technical Research & Development Center, YAMAHA MOTOR CO., LTD.

Nowadays social issues become severer, mobility is expected to fulfill a wide range of roles to support our society. It must also meet stringent standards driven by energy and environmental concerns. On the other hand, development environment with various tools and key technologies such as AI have evolved dramatically, making it easier to bring eccentric and novel ideas to life. My expectation is proposals to expand possibilities of mobility and even create KANDO through our fresh ideas and the synergy of diverse expertise.

### Student's Voice

#### Growing together and creating lifelong value



**IIDA Hinano**  
Second-Year Ph.D. Candidate in Department of Humanities at Nagoya University

I joined the TMI program to pursue interdisciplinary collaboration with a focus on social implementation. With generous support, I worked with students from fields such as informatics and environmental studies on joint research projects, through which we achieved exciting results that I could never have accomplished alone. These efforts led to presentations at major international conferences and several awards. The connections and experiences I gained through TMI have become invaluable assets in both my career and my life.

### Good Practice



The first “TMI Bangkok Summer School” was held in collaboration with Chulalongkorn University in Thailand, and practical fieldwork on mobility was conducted in Bangkok.

The first “TMI Bangkok Summer School” was held in collaboration with Chulalongkorn University in Thailand from August 5 to 11, 2025.

Thirteen students from Chulalongkorn University and eleven students from TMI participated. Set in Bangkok, Thailand—a Southeast Asian automotive production hub where advanced technology coexists with unique informal transportation—students from Japan and Thailand collaborated on fieldwork and discussions regarding the challenges facing mobility.

Furthermore, with support from partner companies, students received the latest information on the local mobility business, and through factory tours and other visits, they had the opportunity to learn from multi-faceted perspectives.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

12 each (FY2020-FY2025), 12(FY2026)

**[Number of people engaged in the program]** 105

**[Students' affiliated schools and departments]**

6 graduate schools, 20 departments

<Graduate School of Humanities> Humanities

<Graduate School of Law> Combined Graduate Program in Law and Political Science

<Graduate School of Economics> Socio-Economic System, Industrial Management System

<Graduate School of Informatics> Mathematical Informatics, Complex Systems Science, Social Informatics, Cognitive and Psychological Sciences, Computing and Software Systems, Intelligent Systems

<Graduate School Engineering> Electrical Engineering, Electronics, Information and Communication Engineering, Mechanical Systems Engineering, Micro-Nano Mechanical Science and Engineering, Aerospace Engineering, Civil and Environmental Engineering

<Graduate School of Environmental Studies> Earth and Environmental Sciences, Environmental Engineering and Architecture, Social and Human Environment

**[WISE Cooperating Institutions]**

8 universities, 22 enterprises

Gifu University/University of Michigan (USA)/Virginia Institute of Technology (USA)/The Ohio State University (USA)/Chalmers Institute of Technology (Sweden)/National University of Singapore (Singapore)/Chulalongkorn University (Thailand)/Hanoi University of Science and Technology (Vietnam)/WHILL Inc./MTG Ventures/EringKlinger Marusan Corporation/KYOCERA Mirai Envision Co., Ltd./KDDI Research, Inc./Cisco Systems/Olbooster, Inc./Sohgo Security Services Co., Ltd./Sompo Japan Insurance Inc./Central Japan International Airport Co., Ltd./Tier IV, Inc./Denso Corporation/Toenec Corporation/TOYOTA SYSTEMS CORPORATION/Toyota Motor Corporation/Toyota Technical Development Corporation/Trusco Nakayama Corporation/Nagoya Railroad Co., Ltd./Fujitsu Ltd./Sumitomo Mitsui Banking Corporation/LY Corporation/Yamaha Motor Co., Ltd.

**[Number of program graduates (including anticipated graduates)]** 4(FY 2024), 14(FY 2025)

**[Career paths after graduation (including anticipated paths)]** 4 to universities, 2 to private enterprise

As of November 2025

## Transdisciplinary talents leading lifestyle revolutions

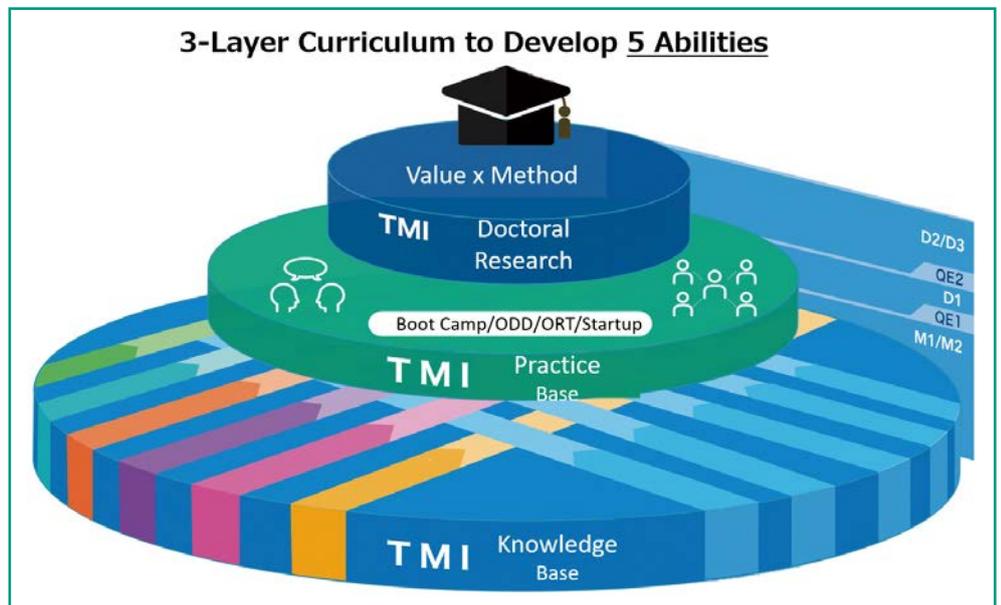
In recent years, technological innovation also known as “mobility revolution” has created social change since the Industrial Revolution that minimizes the cost of traveling in time and space. However, as social issues become more complex and value standards diversify, technology-led “realization of rich lifestyles” is becoming difficult. To drive lifestyle revolution, transdisciplinary human resources are required to team up with experts from different fields (multidisciplinary) such as humanities, social sciences, engineering, informatics, and environmental science, to understand and respect each other’s specialties, to create diverse values (value creation) for lifestyle, and to translate those values to society by building the “technology and methodology”. In this program, in addition to “Industry-Academia Co-Creation Education” in which the university collaborates with private companies, 6 graduate schools and 7 centers are structuring an outstanding curriculum that cultivates transdisciplinary collaboration by expert teams. In this way, we will train “Transdisciplinary Mobility Innovation (TMI) human resources” who can contribute to efforts to create “mobility” with high social values. Through the curriculum, program students will develop five abilities that make up transdisciplinary collaborative ability. The five abilities are “Specialized Research Ability” in one’s own field, “Broad View/Problem Finding Ability” necessary to elevate value in the social system, “Value Co-Creation Ability” to create value through communication among experts in different fields, “Challenge/Resilience” to boldly implement measures in society and overcome difficulties, and “International Outlook” to play an active role in the international community. TMI human resources who complete this program are expected to play active roles as professionals such as researchers, engineers, entrepreneurs, businesspersons, and government officials for lifestyle revolution in a wide range of fields of society.

## Collaboration with industries and 3-layered curriculum

In this program, the knowledge and practice necessary for conducting Transdisciplinary Mobility Innovation (TMI) through transdisciplinary collaboration is structured as a 3-layer transdisciplinary curriculum. The most basic “TMI Knowledge Base” can be selected according to the backgrounds of the students, and consists of: “Course Works” in which basic knowledge necessary for transdisciplinary collaboration is learned



Mobility innovation will bring about major changes in society. In order to create truly rich lifestyles and values, not only technology but also deep understanding of people and society, and “transdisciplinarity” are required.



This program adopts a 3-layer curriculum composed of a “TMI Knowledge Base” consisting of course works, a “TMI Practice Base” consisting of a boot camp, testbed construction, venture catapult, etc., and “TMI Doctoral Research”.

through courses in specialized fields and courses in multidisciplinary fields that connect different fields, “Transdisciplinary Faculty Discussion Lecture” to learn different viewpoints from lecturers in different fields, and “Mobility Innovation Common Lectures” to learn basic knowledge about mobility. The “TMI Practice Base” consists of: “Boot Camp” that fosters transdisciplinary collaboration through close team-type collaboration in a training camp format, “On-site Research Training (ORT)” in which site surveys are conducted on sites such as local governments, “Testbed Design and Development (TDD)” in which students collaborate with corporate mentors to design and develop a “testbed” as a basis of demonstration experiments, and “Venture Catapult” through which students plan and practice the

establishment of a venture by forming a team among students. In “TMI Lifestyle Revolution Doctoral Research”, in addition to a student’s own specialized field, students conduct doctoral dissertation research focusing on “value creation” and “methodology” in lifestyle revolution based on transdisciplinary collaboration such as industry-academia co-creation research. In particular, in the “Industry-Academia Co-Creation Education” promoted by the university, “intellectual professional” ability will be cultivated through joint research with private companies.

## Distinguished Doctoral Program of Platforms



**[Program Coordinator]** HARADA Hiroshi (Professor, Department of Communications and Computer Engineering, Graduate School of Informatics, Kyoto University)

**[Fields of diplomas]** Doctor of Philosophy, or Doctor of Informatics, Doctor of Agricultural Science  
Name of the program to be noted: Distinguished Doctoral Program of Platforms

**[URL]** <https://www.platforms.ceppings.kyoto-u.ac.jp/en/>



### Message from the President



**MINATO Nagahiro**  
President, Kyoto University

### Through the WISE Program, Kyoto University seeks to cultivate advanced “knowledge professionals” who will play key roles in industry, academia, and government.

In 2021, Kyoto University established the Division of Graduate Studies to enhance its liberal arts and general education courses, and centrally manage its diverse graduate degree programs. The new division promotes collaboration and cooperation among graduate schools in diverse aspects of education and research.

It will ensure that the university continues to provide unique high-quality programs under the government’s Doctoral Program for World-leading Innovative & Smart Education (WISE Program). WISE programs are provided in close cooperation with leading companies and world-class research institutes in Japan and leading universities around the world with the aim of cultivating advanced “knowledge professionals” and promoting the reform of the university’s graduate schools.

### Message from WISE Cooperating Institution

#### WISE, an all-in-one program for “platformers” to lead from Japan



**KOJIMA Fumihide**  
Distinguished Researcher, Social Innovation Unit, Open Innovation Platform Headquarters, National Institute of Information and Communications Technology

It has been seven years since the launch of a program designed to foster personnel who will contribute to building platforms that can respond quickly to social risks such as infectious diseases and natural disasters. This program involves creating a multi-disciplinary, optimized platform and using it to cultivate personnel who can drive doctoral-level research and development. As a collaborating institution, we will spare no effort to support these personnel to enable them to help solve social risks globally in the future.

### Student’s Voice

#### Learning Beyond Borders: Growth through the KUSP Program



**Adilah Binti Surimin**  
3rd-year doctoral student, Division of Environmental Science and Technology, Graduate School of Agriculture

The KUSP program brings together multidisciplinary fields on one platform.

As a postgraduate in agriculture, I explored how ICT supports agriculture, engineering, medicine, and others. Through research collaborations, conferences, workshops, and internships in Malaysia, Japan, the U.S., and Italy, I gained global experience, strengthened my research platform and learned to develop innovative and real-world solutions that benefit society.

### Good Practice



#### Lectures, exercises, and seminars by in-house and external experts in the key technologies, user realities, and approaches to implementation needed for platform building

We offer fundamental lectures providing a comprehensive understanding of the key information and communications technologies needed for platform building, lectures discussing essential viewpoints on implementation of platforms in agricultural, medical, and disaster prevention settings, and practical exercises in building infrastructure using sensors, transmission devices, and clouds. Moreover, in order to promote a deeper understanding of platform science and communicate information to the public, we hold open seminars once a month, inviting speakers from researchers in fields related to the topic, or from companies and other organizations involved in implementation in society. Students are broadening their knowledge through opportunities for discussion with speakers after these seminars.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]**

15year(FY2021), 15 (FY2022), 15 (FY2023),15FY2024), 15 (FY2025)  
15year(FY2026)

**[Number of people engaged in the program]** 94

**[Students’ affiliated schools and departments]**

2 graduate schools,7departments

<Graduate School of Informatics>-Department of Informatics

<Graduate School of Agriculture> Agronomy and Horticultural Science, Forest and Biomaterials Science, Applied Life Sciences, Applied Biosciences, Environmental Science and Technology, Natural Resource Economics

**[WISE Cooperating Institutions]**

17 universities, 14 business enterprises, 5 National Research and Development institutes, 1 incorporated association, 2 judicial foundations Jichi Medical University/The Institute of Statistical Mathematics/Toyota Motor Corporation/ NTT Communication Science Laboratories/Meteorological Engineering Center/ Agricultural and Rural Development Information Center/The Research Institute for Humanity and Nature/Mitsubishi UFJ Research and Consulting/RIKEN/LINE Yahoo Research/System Platform Research Laboratories/Advanced Telecommunications Research Institute International/Nippon Telegraph and Telephone West Corporation/KDDI Research, Inc./KADOKAWA ASCII Research Laboratories, Inc./ Ruby Association/Anritsu Corporation/Institute for Health Economics and Policy/ National Institute of Information and Communications Technology/National

Fisheries University/Japan Agency for Marine-Earth Science and Technology/The National Agriculture and Food Research Organization/Mitsubishi Electric Corporation Information Technology R&D Center/Sony Group R&D Center/Deloitte Tohatsu Cyber LLC/University of Chicago/University of Illinois/Vienna University of Technology/University of Potsdam/Delft University of Technology/ Technical University of Berlin/Aalborg University/Huazhong Agricultural University/ National Chung Hsing University/National Taiwan University/University of Florida/ Technical University of Munich/Sorbonne University/The French National Centre for Scientific Research/Institute for Infocomm Research, Agency for Science, Technology and Research (A\*STAR)

**[Number of program graduates (including anticipated graduates)]** 4(FY2023), 4(FY2024),7(FY2025)

**[Career paths after graduation (including anticipated paths)]** 4 to private enterprise, 1 to public research institute, 3 to others

As of November 2025

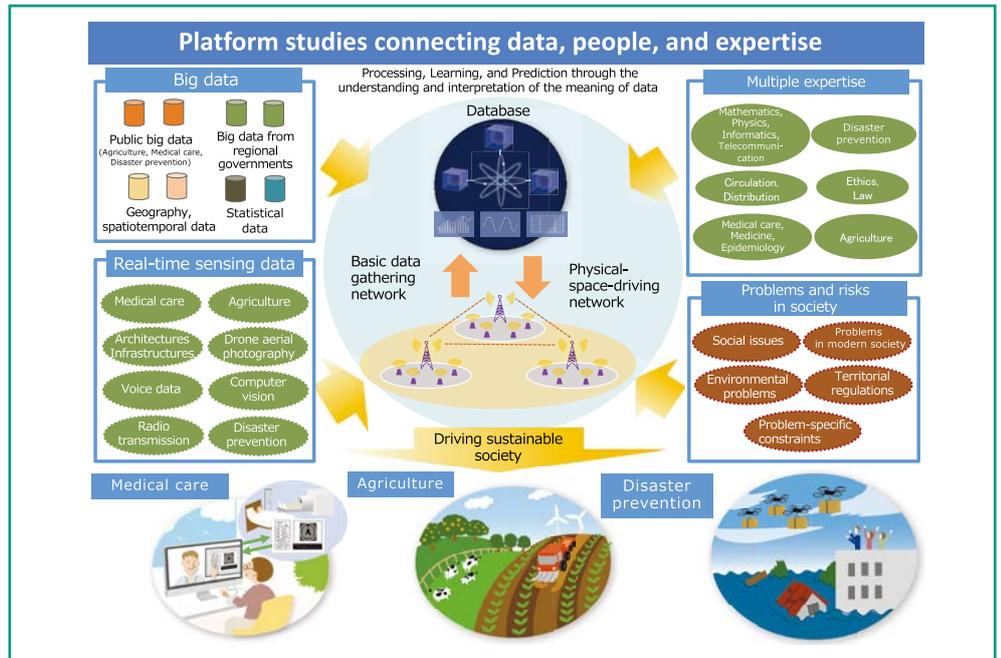
## Platform Studies: A new academic field to advance society

To reduce the social risks involved in various fields such as agriculture, medical care, and natural disasters, the “platforms” plays an increasingly important role in our society. The platforms use information and communication technologies to categorize, analyze, and share digital data obtained from various information sources that are non-uniformly spread throughout our society, which are collected and stored in the form of big data. A platform consists of three components: a basic data gathering network composed of various sensors, information terminals, and information communication networks; a database that carries out tasks such as feature extraction and prediction utilizing machine learning and/or deep learning; and a physical-space-driving network that feeds back the processed results into physical space (actual society) and controls various devices.

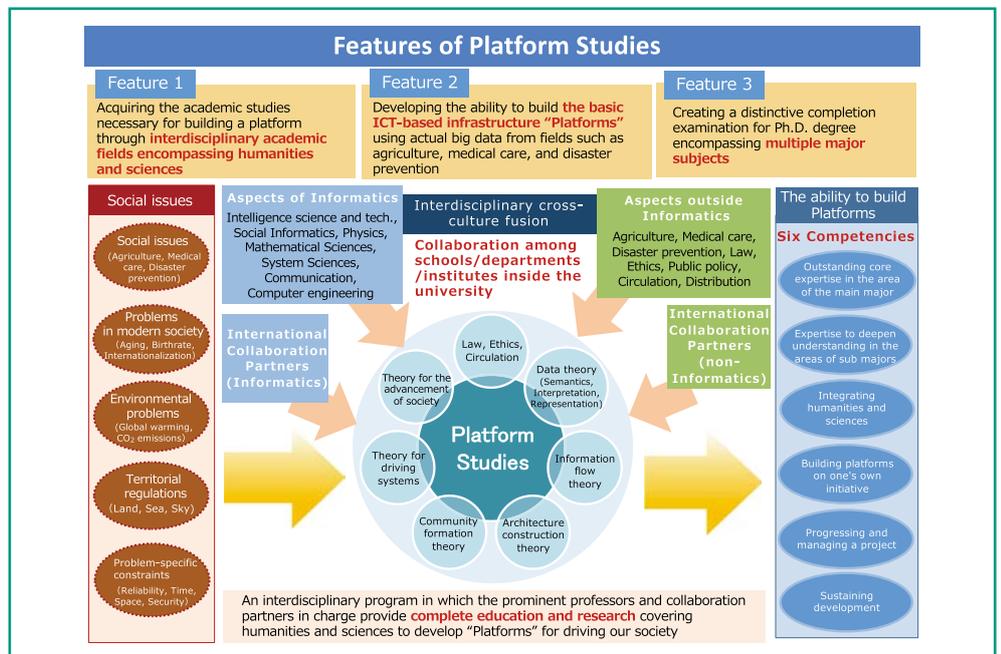
Currently, the collection and processing of extensive data by platforms entails high power consumption and computer resources. However, we can reduce the power consumption and cost if we consider the processes involved in decentralization, safety, and speed in the data generation and collection process. This, however, requires knowledge of informatics. Deep learning and machine learning have become standard techniques nowadays but often end up being black boxes. It is possible to improve the output while reducing costs by understanding and interpreting the data’s meaning in each specific field properly and by optimizing the data. To achieve this, informatics must be combined with knowledge of other disciplines such as agriculture, medical care, and disaster prevention. The emergence of cloud computing and communication networks developed in other countries challenges Japan. It is not sufficient for engineers to be only involved in platform development. They also need to consider the business as well as the standardization from an international perspective. Indeed, such platform developments with a broader world perspective require the knowledge of laws, ethics, public policy, distribution, and other human studies. We believe this kind of comprehensive expertise helps engineers implement new collective decision-making mechanisms on platforms supplied by Japan’s unique outlook on social ethics and fairness. In this program, we name this new interdisciplinary academic field “Platform Studies” and we propose to develop the required skills with our five-year doctoral program.

## The six competencies to be developed, and program features

In this program, we will develop the ability to build



Mission of distinguished doctoral program



Features of distinguished doctoral program

the basic infrastructure of platforms using actual big data from agriculture, medical care, disaster prevention, among others. Then, according to the students’ backgrounds and orientations, we will develop an educational system that helps them acquire the knowledge of Platform Studies, encompassing multiple major subjects and advanced, original research capabilities across the following six competencies.

- (1) Outstanding core expertise in the area of the primary major
- (2) Expertise to deepen understanding in the areas of sub majors
- (3) Integrating humanities and sciences, including

subjects such as law, ethics, and distribution that are required to build a platform

- (4) Building platforms on one’s own initiative
- (5) Progressing and managing a project and operating and expanding the results globally
- (6) Sustaining development through standardization and social implementation

To demonstrate and implement the platforms built in this program, we will create an environment in which students can access a wealth of actual data and have opportunities to interact with front-line professionals from industry, government, and academia in Japan and overseas.

## Graduate Program of Mathematics for Innovation



**[Program Coordinator]** SAEKI Osamu (Vice Dean of the Joint Graduate School of Mathematics for Innovation, Kyushu University)  
**[Fields of diplomas]** Doctor of Philosophy, Doctor of Philosophy [Mathematics], Doctor of Functional Mathematics, Doctor of Information Science, Doctor of Science, Doctor of Engineering, Ph. D. in Economics  
 Name of the program to be noted: Graduate Program of Mathematics for Innovation  
**[URL]** <https://www.jgmi.kyushu-u.ac.jp/en/>



### Message from the President



**ISHIBASHI Tatsuhiro**  
President, Kyushu University

### Nurturing “Excellent Doctoral Talents in Mathematics” who can develop new interdisciplinary fields and create innovation

In 2021, Kyushu University outlined “Kyushu University VISION 2030,” which is comprised of 8 visions, and is proceeding the development of the education and research activities that match the worlds’ top university with the aim of transforming ourselves into a “university that drives social change with integrative knowledge,” which is set as our ideal figure.

This program is positioned as one of the most important graduate programs in Kyushu University. Through nurturing the “Excellent Doctoral Talents in Mathematics” who develop new interdisciplinary fields and create innovation, we are committed to achieve our vision of “Training students and researchers who can apply mathematics, data-science and AI skills to their fields” and “Training Doctoral Talents who lead to solve the social issues by developing integrative, cross-disciplinary degree programs.”

### Message from WISE Cooperating Institution

#### Innovation based on Artificial Intelligence and Mathematical Technology



**ANAI Hirokazu**  
Principal Research Director,  
Artificial Intelligence  
Laboratory, Fujitsu Research,  
Fujitsu

In the present era of digital transformation, expectations for Mathematics talents who are in charge of artificial intelligence and mathematical technology are becoming greater and greater. This program is unique in that it will contribute to the development of human resources who can create innovations by practicing co-creation with society and possessing fundamental mathematical skills. It also offers the first initiative of the WISE Doctoral System for Mature Students and we are glad to be a part of it.

### Student’s Voice

#### Inspired by Math Modeling: Applying Math and Med for Social Contribution



**FUJIYOSHI Yusuke**  
Joint Graduate School of  
Mathematics for Innovation  
M2

I study number theory, and my interest in the medical field began with the “Math Modeling” program at the graduate school, which inspired me to explore applications beyond mathematics. Currently, I analyze medical data to uncover causal relationships between disease progression and treatment. I aim to deepen my expertise in both number theory and data analysis, contributing to society by connecting theory with practice.

### Good Practice



### “Mathematics for Innovation Café,” Co-creative Activity Organized by Students

Students and young mentors collaborate to take the initiative in planning, organizing, and disseminating the activity to society, and regularly hold lectures and poster presentations by young researchers, etc., as well as social gatherings on a scale where all participants can see each other. Not only program students but also undergraduate students of the Department of Mathematics and students in other fields participate in the café, where research on the theme of mathematics is introduced in an easy-to-understand manner and opinions from various perspectives are exchanged, which is also useful for recruiting activities. The program students themselves also have opportunities to give lectures and presentations, and through implementation and participation in this café, they can improve their mathematical and co-creation skills.

### DATA

**[Number of students recruited (For FY2026, number of students to be recruited)]** 18(FY2021), 14(FY2022), 14(FY2023), 14(FY2024), 14(FY2025), 14(FY2026)

**[Number of people engaged in the program]** 97

**[Students’ affiliated schools and departments]** 1 graduate school

Joint Graduate School of Mathematics for Innovation

**[WISE Cooperating Institutions]**

10 universities, 3 public research institutes, 4 companies, 1 local

public body

Department of Mathematics, University of Illinois at Urbana-Champaign (US) / Department of Mathematics, University of California, San Diego (US) / Department of Mathematics and Statistics, La Trobe University (Australia) / Department of Mathematics, National University of Singapore (Singapore) / Department of Mathematics, Ajou University (Korea) / Department of Mathematics, National Taiwan Normal University (Taiwan) / Politecnico di Torino (Italy) / Zuse Institute Berlin (Germany) /

Mathematical Institute, Leiden University (Netherlands) / Faculty of Engineering, Lund University (Sweden) / The Institute of Statistical Mathematics / RIKEN (Center for Advanced Intelligence Project) / Center for Interdisciplinary Theoretical and Mathematical Sciences / The National Institute of Advanced Industrial Science and Technology / Fujitsu Limited / Mazda Motor Corporation / Sumitomo Electric Industries, Ltd. / NTT, Inc. / Itoshima City (Planning Department, Regional Promotion Division) /

**[Number of program graduates (including anticipated graduates)]** 3 (FY2023), 5 (FY2024)

**[Career paths after graduation (including anticipated paths)]** 3 to Universities / 5 to enterprises

As of October 2025

## Mathematical Modeling Talents with Mathematics Five Forces

In the super-smart society that we aim at, AI technology and data analysis are essential, while they have certain limits. The versatility and rigor of Mathematics have received attention as a way to break the limits and change our future business and life dramatically.

Mathematics can make great contributions to innovation. For example, in the United States major companies are making a big impact on the world by utilizing mathematical modelings.

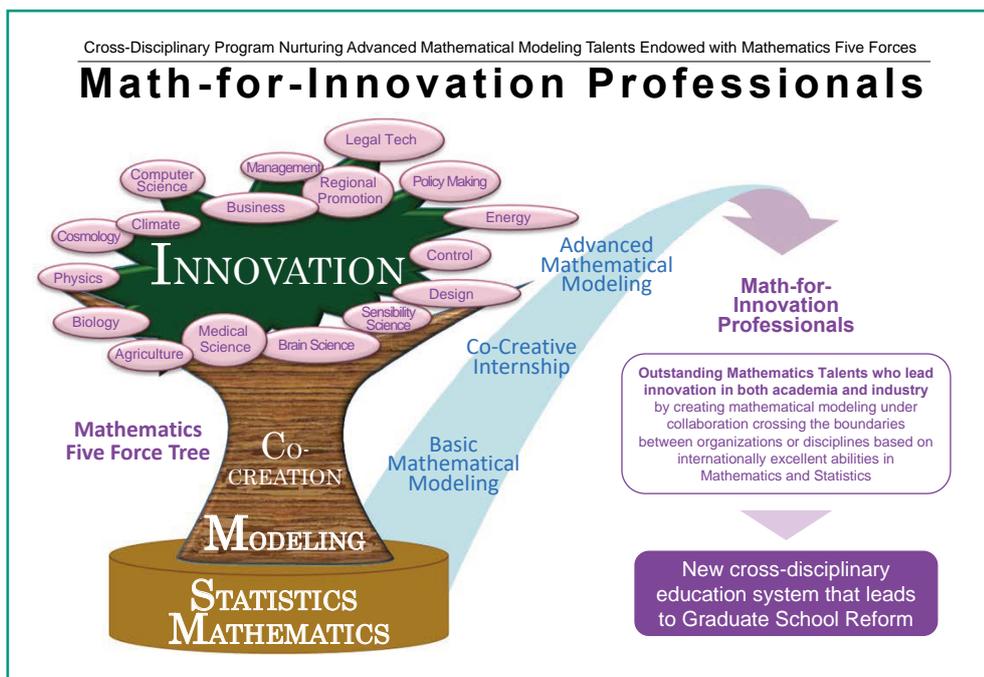
On the other hand, the strength of Japanese industries lies in precision and high quality, so we can make a leap forward by using Mathematics resources. We have the potential to lead the world: unfortunately, we have not been able to do so because Mathematics has not actively collaborated with other fields, and other fields have not been fully utilizing Mathematics. In order to overcome the situation, we need new doctoral talents in Mathematics, so to speak, “mathematical modeling talents.”

Therefore, we envisioned “the Graduate Program of Mathematics for Innovation.” The five skills that this program aims to cultivate are shown in the Mathematics Five Force Tree (Figure 1). Having excellent mathematical and statistical skills is the basis and represents the soil, and by utilizing the mathematical modeling power and the power to co-create across organizations and fields, it fertilizes the lush leaves to create innovation and blooms flowers in each field, in turn cultivating “Math-for-Innovation Professionals.” In the Master’s Program, students join the labs of faculty members of other fields as “Basic Mathematical Modeling.” In the Doctoral Program, we have three “Co-Creative Internships,” i.e. industrial, interdisciplinary, and international ones, as well as “Advanced Mathematical Modeling,” in which students lead researchers in other fields in mathematical modeling as reverse mentors.

## Kyushu University’s Distinctive Initiatives

The main reason for proposing this WISE program at Kyushu University is that we have a proven track record of contributions to society by Mathematics and have a strong determination to take on that responsibility.

For this purpose, Kyushu University established the Joint Graduate School of Mathematics for Innovation in April 2022 through the collaboration of the Cooperative Graduate Schools (Mathematics, Information Science and Electrical Engineering, and Economics) as a basic organization for the delivery of inter-graduate school



(Figure 1) Mathematics Five Force Tree & Math-for-Innovation Professionals

### Japan’s First Career Support Initiative

Implementation of an Innovative New System to Solve the Issue of PhD Decline

**First in Japan! WISE Doctoral System for Mature Students**

**After completing the master’s program, hired by a company and simultaneously enrolled in the doctoral program as a working professional**

- ☑ Simultaneously solving multiple issues, including financial support, career development, strengthening of industry-academia collaboration, and promoting personnel exchange between universities and companies.
- ☑ In collaboration with **Fujitsu Limited** along with other partner companies, aiming to establish Japan’s first institutionalized program at this prestigious graduate school.
- ☑ Aiming to apply the system to 3 students / year.

- Employment at **Fujitsu Limited** can begin in the middle of the fiscal year, not necessarily in April.
- The **job is primarily research**. Themes are matched with Fujitsu Limited.
- There are two employment options: **contract employment** and **permanent employment**. Contracts for contract employees are renewed annually, up to a maximum of three years, during the doctoral program.
- The maximum number of recruits is “two” each year.
- They **accept internships** as well as employees.

**In 2022: Employment at Fujitsu and advancement to the doctoral program have been realized.**

(Figure 2) WISE Doctoral System for Mature Students solves multiple problems at once, such as financial support, career development, etc.

program. In particular, the Graduate School of Mathematics has been offering long-term internship training, and is one of the two organizations that earned the highest result in the second-term corporate evaluation by MEXT, Japan. As research organization, we have the Institute of Mathematics for Industry (IMI), which is Japan’s unique joint usage/research center for industrial Mathematics, and is actively engaged in the mission to develop “Mathematics for Industry,” a new research area of Mathematics born from dialogues with industry. We will take on the responsibility of the University through this interdisciplinary degree program, designed by various departments and faculty members. One of the most distinctive initiatives in this plan is

to establish the WISE Doctoral System for Mature Students (Figure 2). This means that companies hire excellent Master’s graduates, and at the same time, the students are admitted to the doctoral program as mature students, and they return to the company after obtaining their doctoral degrees. This allows us to solve various problems at once, such as financial support, career development, and strengthening industry-academia collaboration. In April 2022, employment at our partner institution, Fujitsu Limited, was realized through this system. We would like to extend this system to other companies, increase the dwindling number of doctoral students in Japan, as well as to contribute to the active exchange of industry-academia human resources.

► **For inquiries about the overall WISE Program**

**University Promotion Division, Higher Education Bureau  
Ministry of Education, Culture, Sports, Science and Technology (MEXT)**

3-2-2 Kasumigaseki, Chiyoda-ku, Tokyo 100-8959, JAPAN  
Phone : +81-3-5253-4111 (ext.3357)

[https://www.mext.go.jp/a\\_menu/koutou/kaikaku/  
takuetudaigakuin/index.htm](https://www.mext.go.jp/a_menu/koutou/kaikaku/takuetudaigakuin/index.htm)  
(Only in Japanese)



► **For inquiries about screening and evaluation under the Program**

**Secretariat of the Program Committee  
University Cooperation Program Division, Human Resource Development  
Program Department, Japan Society for the Promotion of Science (JSPS)**

5-3-1 Kojimachi, Chiyoda-ku, Tokyo 102-0083, JAPAN  
Phone : +81-3-3263-0979

<https://www.jsps.go.jp/j-takuetsu-pro/>  
(Only in Japanese)



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