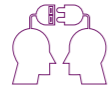


**SiMS Special Research
(Laboratory Rotation)
*1**



Students will spend at least three months in a different field or specialization from their home laboratory, and promote interdisciplinary research and fosters communication with individuals from diverse backgrounds in a global environment.

**Special Seminar for
Strategic Reasoning & Thinking
*2**



This is the cornerstone practical course of our program. It emphasizes "systems thinking" to view complex problems holistically and "design thinking" to generate innovative ideas. Through group work and exercises, we build the foundation for developing system-inspired researchers with strong ideation skills.

**Special Communication Seminar
Based on Multidisciplinary Sciences
*3**



Students will explore various perspectives on what "different fields" mean to them, learning the importance of interdisciplinary thinking, which integrates knowledge from diverse fields. They will also acquire the communication skills necessary for collaboration beyond their own expertise.

**Special Seminar for
Global Communication
*4**



The course is based on the language functions of "describe," "propose," and "compare," etc., in order to develop the ability to think and communicate in English as an indispensable skill for leaders who are active globally.

**Global Leader Workshop
(Study Abroad)
*5**



Through overseas research and training lasting about three months or more, students will gain the comprehensive knowledge required of high-level researchers who lead global industries. This includes practical application of their knowledge. Students will set their own training goals and choose their training destinations independently.

**Study Abroad
(as of the fiscal year 2024)**

SiMS students are required to study abroad for about three months at universities and research institutes worldwide.

Universities

Aalborg University, California State University, Sacramento Collège de France, Florida State University, Justus Liebig University Giessen, Karadeniz Technical University, McGill University, Nanyang Technological University, National University of Singapore, Norwegian University of Science and Technology, Purdue University, Stanford University, University of Colorado Boulder, The University of Cologne, Tongji University, University of Alberta, University of California, Berkeley / Irvine, University of Exeter, University of Florida, University of Freiburg, University of Hawaii, University of Iowa, University of La Rochelle, University of Leuven, University of Michigan, University of Oxford, University of Sassari, University of Toronto, University of Waterloo

Research institutions, companies

Argonne National Laboratory, Daicel (China) Investment Co.,Ltd. Diamond Light Source, Donostia International Physics Center, French National Centre for Scientific Research, Georgia Institute of Technology, Jozef Stefan Institute, National Institutes Health,US, Oak Ridge National Laboratory, Scienta Omicron, SINTEF, The South Australian Research and Development Institute , National Institute of Astrophysics, Optics and Electronics (INAOE)

**Career Paths After Course Completion
(Employment-related)**

Companies

Asahi Kasei Corp. , ERM Vietnam, Western Digital Corporation, Aroma Bit, Inc. KANEKA CORPORATION, QUNIE CORPORATION, Synplogen Co., Ltd., 3DC Inc. DENSO Corporation, SAPIX YOZEMI GROUP, Plaisir Inc. Brain Pad Inc. Hitachi, Ltd., MIZUHO MEDY Co., Ltd., KYOCERA Corporation, KUMIAI CHEMICAL INDUSTRY CO., LTD., KONICA MINOLTA, INC. JSR Corporation, Sumitomo Chemical Company, Limited, Sumitomo Heavy Industries, Ltd., Sekisui Chemical Co.,Ltd., Sony Semiconductor Solutions Corporation, Dow Chemical Japan Ltd., DIC Corporation, DataRobot, Toray Industries, Inc. Tokyo Electron Ltd., Zeon Corporation, NTT Science and Core Technology Laboratory Group, Nihon Nohyaku Co.,Ltd., Panasonic Holdings Corporation, Furukawa Electric Co., Ltd., Hodogaya Chemical Co.,Ltd., Mitsubishi Electric Corporation, Micron Japan, Ltd., ROHM Co.,Ltd.

Research institutions

Asia Center for Air Pollution Research, Japan Environmental Sanitation Center, Japan Aerospace Exploration Agency, National Institute of Advanced Industrial Science and Technology,Osaka Research Institute of Industrial Science and Technology

Academia

Osaka Metropolitan University, Shizuoka University, University of Tokyo

SiMS Committee Members

Program Director
Toshiyuki Matsui, Vice President, Osaka Metropolitan University
Program Committee Chair
Atsushi Ashida, Professor, IDec, Osaka Metropolitan University



Osaka Metropolitan University

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Graduate Course

SiMS

for *System-Inspired Leaders in Multidisciplinary Science*

Become a Global Leader

You can change the world!

SiMS-Doctorate Program for Global Leaders

SiMS Goals

To meet the growing imperative of industries striving for heightened competitiveness and the realization of a sustainable society through innovation, there is an escalating demand for doctoral researchers adept at demonstrating global leadership. The necessity for individuals capable of formulating multidisciplinary and cross-disciplinary strategies, free from the constraints of singular fields and encompassing social scientific perspectives, is becoming increasingly paramount. Within this esteemed graduate school program, our objective is to cultivate "System-inspired Leaders in Multidisciplinary Science." These leaders will possess the acumen to devise research strategies that foster innovation through the fusion of interdisciplinary creativity, a comprehensive understanding across various fields, and the profound integration of layers within their respective domains.

Graduate Course for System-inspired Leaders in Multidisciplinary Science

Picture of Human Resources to be Nurtured

Our objective is to nurture researchers who embody the following abilities and characteristics:

1. A robust academic foundation and the capability to lead within their area of expertise.
2. A comprehensive understanding of diverse academic domains, transcending specific specialized fields.
3. Proficiency in crafting research strategies derived from multidisciplinary and multilevel interdisciplinary concepts.
4. Ingenuity and the capacity to translate fundamental research into industrial innovation.
5. Leadership prowess and the aptitude to organize and guide diverse teams towards shared objectives.
6. Competence in managing and implementing R&D strategies effectively.
7. Proficiency in disseminating ideas widely and establishing a strong global presence within the academic community.



3 Features of Program

1. Leading Program for Doctoral Education:

Approved by the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

- Continued development of the "Leading Program" with high evaluation from MEXT.
- Qualification review system ensures quality and academic achievement.
- Certificate of Completion for System-inspired Leaders in Multidisciplinary Science.

2. Excellent Support System:

- Individual mentoring by experienced corporate executives.
- Support from the Center for Advanced Education in Entrepreneurship and Innovation (IDec).
- Financial support through various support programs.
- Independent joint research funds.
- Full support for overseas research expenses.

3. A five-year integrated curriculum to develop the required human resources.

Our program fosters:

- ▶▶▶ Comprehensive understanding, multidisciplinary and multilevel interdisciplinary research skill through Interdisciplinary Courses and Laboratory Rotations.
- ▶▶▶ Design skills, systems thinking, and international communication skills through Ideation and Global Courses.
- ▶▶▶ Business development, management skills, intellectual property strategy, and leadership through Entrepreneurship Courses.
- ▶▶▶ Research management skills, execution skills, and career design through interdisciplinary joint research and industry mentorship.

SiMS

The curriculum is an integrated course through the Master's and Doctorate courses. There are two methods of selection: subject-based selection and examination selection. In the subject-based selection, students are required to take the subject(*2) for selection in M1.

Summary

Graduate School Entrance Examination (Other universities, countries)

Ideation Courses
Special Seminar for Strategic Reasoning & Thinking *2

SiMS Selection

Philosophy of science, Ethics

Literacy Courses

- Scientific Literacy
- Studies on International Environmental Issues
- Special Seminar for Scenario Task Oriented Planning
- Introduction to Innovation

Multidisciplinary and international communication skills

Interdisciplinary Courses

- Special Communication Seminar Based on Multidisciplinary Sciences*3

Global Courses

- Special Seminar for Global Communication*4

Interdisciplinary Course

- SiMS Special Research (Laboratory Rotation)*1

Multidisciplinary Multilevel integrated research capabilities

SiMS QE

SiMS Qualifying Examination(QE)

- Are you able to design multilevel interdisciplinary research strategies?
- Can you create a coursework and research plan to acquire necessary SiMS skills?

Entrepreneurship, Leadership

Entrepreneurship Courses

- Idea Generation, IP Strategy, Management & Marketing, Venture Business, Leadership, etc.
- Business Planning
- Corporate Research Internship
- R&D Leader Development Corporate Internship

Ability to communicate internationally and understand different cultures

Ideation Courses

- The Ideation and Globalization Workshop

System-inspired theme setting ability

SiMS Defense

SiMS Defense

- Have you reached the desired competencies of SiMS?
- Can you develop new values based on multidisciplinary ingenuity?
- Are you capable of global leadership and industrial innovation?

Master course

Doctorate course