

Established in April 2027

University of Tsukuba G-SIGMA

Graduate School of
Integrative and Global Multidisciplinary Arena

Pioneering Interdisciplinary Inquiry at the Frontiers of Next-Generation Knowledge

The Legal Order of Future Societies

The Nature of Human, Economics and Social Systems

Foundations of Next-Generation Energy

Knowledge Integration for Biological Sustainability

Advanced Integration across Medicine, Natural Sciences and Engineering

G-SIGMA consists of five programs, each with a distinct academic foundation. Together, they address complex societal challenges that cannot be solved by a single discipline alone. To foster interdisciplinary education and research, the five programs are integrated into a single graduate school with a common foundational curriculum. Advanced specialized education, research supervision, industry–academia–government collaboration, and international engagement are closely interconnected, creating synergies among the programs while preserving their individual strengths and promoting interdisciplinary education and research throughout G-SIGMA.



G-SIGMA Website

Curriculum of G-SIGMA

Curriculum Overview

Advanced Interdisciplinary Education for the Integration of Knowledge and Its Implementation in Society Beyond Disciplinary Boundaries

- Challenges facing future societies cannot be resolved within a single academic discipline alone. Based on the fields of law and economics, sociology, business administration, science, engineering, agriculture, and medicine across the University's three graduate schools, this graduate school provides interdisciplinary education to address key issues such as the order of future societies, sustainable next-generation infrastructures, the sustainability of life, and human potential. These four perspectives are integrated as core pillars, enabling a comprehensive and holistic design for the future.
- With a dual focus on cultivating both researchers and advanced professionals, the graduate school offers education and research characterized by internationality, practicality, and interdisciplinarity. Through collaborative approaches that transcend disciplinary boundaries and a multi-mentor system for research supervision, it further enhances the University of Tsukuba's strength as a "comprehensive university" and fosters highly skilled professionals who will lead the integration of knowledge and its implementation in society.

Graduate Profile

- Individuals with a keen international outlook who respect diverse identities and cultures and contribute to teams
- Individuals with broad knowledge who can understand the latest academic achievements from an interdisciplinary perspective and apply knowledge to social transformation
- Individuals with solid knowledge and information literacy who can think logically and perform professional functions

Curriculum

- Internship
- Participation in Joint Research
- Study Abroad
- Specialized Subjects
- Research, etc.

Master's Program



General Foundation Subjects

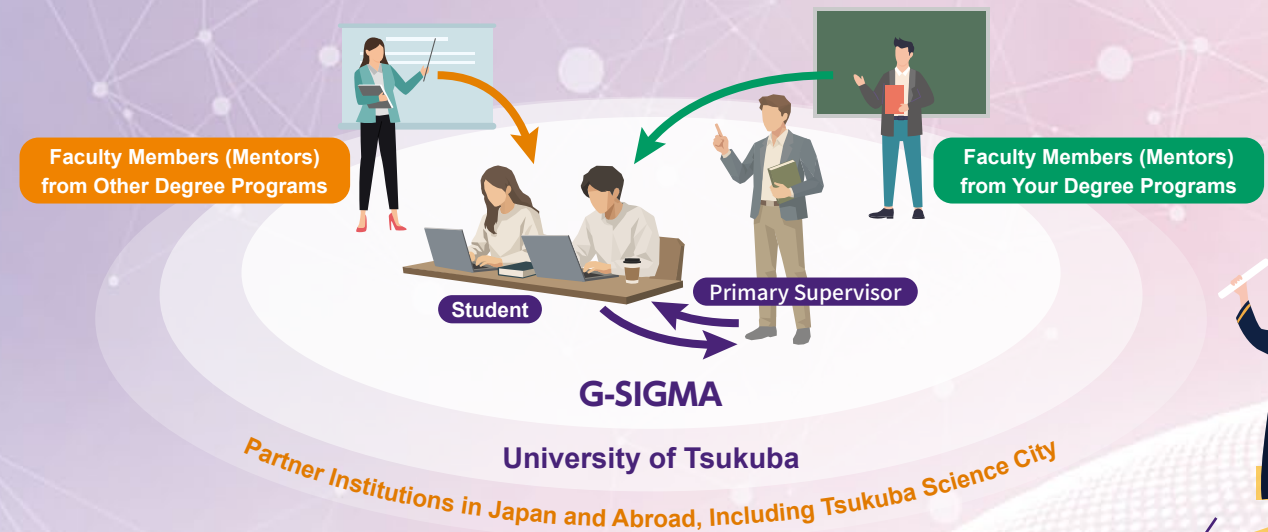
- Inter-disciplinary Foundation Courses
- Graduate General Education Courses

Desired Student Profile

- Individuals with strong motivation and basic abilities to:
- Understand global trends and issues from an academic perspective and conduct research;
 - Develop either of the following abilities:
 - Research ability to contribute to the discovery of truth and the creation of value;
 - Ability to understand advanced specialized knowledge, including the latest academic achievements, from an interdisciplinary perspective, and apply it in the international community.

Multi-Mentor System of G-SIGMA

By pursuing scholarship beyond all boundaries, students cultivate the ability to create knowledge and lead social transformation.



G-SIGMA adopts a multi-mentor system in which, in addition to a primary supervisor, multiple faculty members from different disciplines participate in research supervision.

Doctoral Dissertation

Graduate Profile

- Individuals who can demonstrate global leadership based on a keen international outlook
- Individuals with broad knowledge, independent research ability, and creative capacity who can create and implement knowledge for the future of human society
- Individuals who combine logical thinking with the ability to create knowledge and open up new professional fields

Curriculum

- Long-term Internship
- Planning and Implementation of Joint Research
- Long-term Study Abroad
- Specialized Subjects
- Research, etc.

Doctoral Program

General Foundation Subjects

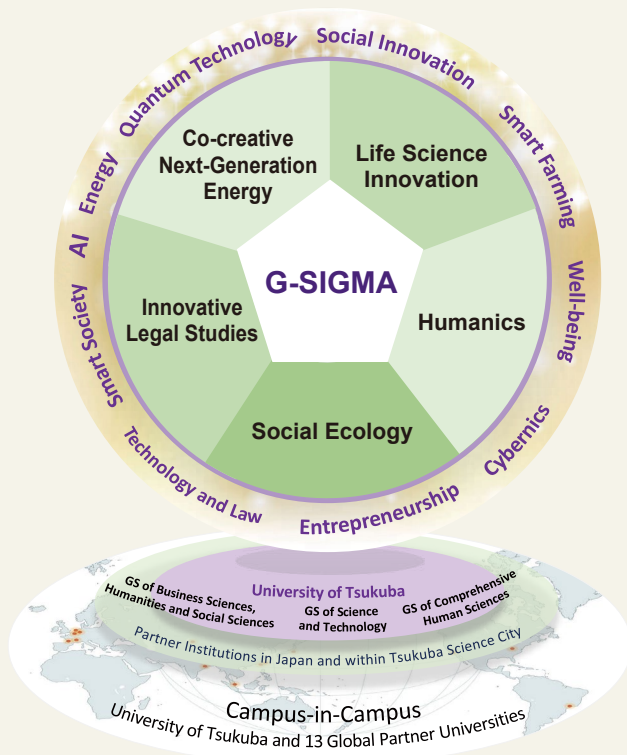
- Inter-disciplinary Foundation Courses
- Graduate General Education Courses

Desired Student Profile

- Individuals with strong motivation and basic abilities to acquire creative intelligence, including:
- Independent research ability to identify their own research questions, design interdisciplinary research processes, and discover new truths or create new value;
 - Creative capacity to connect opposing concepts and values and integrate them at a higher level;
 - Ability to apply research outcomes to contribute to the development of the international community.

5-year Doctoral Program

Five Programs of G-SIGMA



Master's and Doctoral Programs in Innovative Legal Studies

Programs designed to respond to advances in science and technology, including AI, and to explore future legal systems through the integration of perspectives from law, politics, sociology, and other disciplines.

Master's and Doctoral Programs in Social Ecology

Programs that conceptualize society as an ecological and dynamic network, and promote the social implementation of advanced technologies and collaboration among industry, government, and academia, while examining the fundamental nature of human society from the perspectives of social sciences, including economics.

Master's and Doctoral Programs in Co-creative Next-Generation Energy

Programs that, based on materials science and informatics, conduct research on energy and environmental technologies with a view toward their implementation in society.

Master's and Doctoral Programs in Life Science Innovation

Collaborative graduate programs that advance next-generation innovation in the life sciences, encompassing research in disease mechanisms, drug discovery, biomolecular science, food, environment, and bioinformatics.

Doctoral Program in Humanics

A program that integrates medicine, life sciences, robotics, and informatics as foundational domains of knowledge, and conducts advanced research to pioneer new academic fields.

Programs					
Program Type	Master's Program Doctoral Program	Master's Program Doctoral Program	Master's Program Doctoral Program	Master's Program Doctoral Program	Five-year Doctoral Program
Degree Awarded	Master of Arts in Innovative Legal Studies Doctor of Philosophy in Innovative Legal Studies	Master of Arts in Social Sciences Doctor of Philosophy in Social Sciences	Master of Science and Technology Doctor of Science and Technology	Master of Science in Bioengineering Doctor of Philosophy in Bioengineering	Doctor of Philosophy
Related Fields	Social Basis, Legal Theory, Legal Systems, Science and Technology, Implementation of Law	Social Innovation, Game Theory, Experimental Economics, Social Implementation Research, Industry-Academia-Government Collaboration, ELSI, Science and Technology Policy, Intellectual Property, Finance, Technology Transfer, Entrepreneurship, Legal Support, Venture Support, Communication Research	Physics, Chemistry, Materials Science, Engineering Physics, Information Science, Energy and Environmental Materials, Environmental Assessment, Quantum Physics, Sociology, Economics	Bioinformatics, Food Innovation, Environmental Management, Biomolecular Engineering, Disease Mechanism, Drug Discovery	Medicine, Sleep Medicine, Human Biology, Neuroscience, Engineering, Information Science and Engineering, Materials Science, Cybernetics, MDA, and Artificial Intelligence
Number of Students	Master's Program : 10 Doctoral Program : 6	Master's Program : 6 Doctoral Program : 2	Master's Program : 10 Doctoral Program : 3	Master's Program : 18 Doctoral Program : 12	Five-year Doctoral Program: 8
Website					