

Division		Laboratory	Research Theme [Faculty Members]	Educational Courses	Entrance Examination Groups
Core Divisions	Urban Environment and Environmental Geography	Environmental Geography	Understanding Diverse Human-Environment Relationships from Geographical Perspectives [Prof. Tomoki Nakaya / Assist. Prof. Ryohei Sekine]	CES	Env/Geo
		International Disaster Risk Reduction Science	Review and Propose International Disaster Risk Reduction Policies from Geographical and Practical Perspectives [Prof. Yuichi Ono ^{IRIDeS} / Assist. Prof. Yuta Hara ^{IRIDeS}]	DSci	Env/Geo
		Land System Sustainability	Advancing land systems for sustainability, social-ecological resilience, and human well-being [Assoc. Prof. Ronald C. Estoque]	CES	Env/Geo
		Disaster Risk Governance Research	Research on policies and measures for Disaster Risk Reduction (DRR) [Prof. Kozo Nagami ^{GGI}]	DSci	Env/Geo
		Disaster Culture and Archive Studies	Archiving and interdisciplinary research on historical and contemporary disaster information [Assoc. Prof. Akihiro Shibayama ^{IRIDeS} / Assoc. Prof. Yuichi Ebina ^{IRIDeS}]	DSci	Env/Geo
		Disaster Social informatics	Communication research on turning disaster lessons into decision-making and behavior change [Assoc. Prof. Shosuke Sato ^{IRIDeS}]	DSci	Env/Geo
	Solar and Terrestrial Systems and Energy Sciences	Process Engineering for Advanced Resources Utilization	Aiming at Advanced Metal Production Process with Maximum Energy Efficiency & Minimum Environmental Load [Prof. Taichi Murakami / Assist. Prof. Ryota Higashi]	EmP	Materials
		Earth System Monitoring and Instrumentation	Variations of ozone and related trace species in the atmosphere [Assoc. Prof. Isao Murata]	CES	Env/Geo
		Urban and Regional Environmental Systems	Researches on Water Resources and Environments [Prof. Yu-You Li ^{GSE} / Prof. Daisuke Sano ^{GSE} / Prof. Daisuke Komori ^{GGI} / Assoc. Prof. Kengo Kubota / Assist. Prof. Katayoun Amirfard ^{GSE} / Assist. Prof. Amalia Nafisah Rahmani Irawan ^{GGI}]	CES/DSci	Env/Geo
		Tsunami Sedimentology	Geological investigation and numerical modeling of past tsunami disasters [Assoc. Prof. Daisuke Sugawara ^{IRIDeS}]	DSci	Env/Geo
		Earthquake Disaster Mitigation and Vibration Control	Earthquake disaster mitigation and vibration control in various devices and environments [Assoc. Prof. Ryuta Enokida ^{IRIDeS}]	DSci	Env/Geo
	Environmentally Benign Systems	Recycling Chemistry	Aimed on the realization of a resources-material recycling society [Prof. Toshiaki Yoshioka / Assoc. Prof. Shogo Kumagai ^{GSE} / Assist. Prof. Phanthong Patchiya / Assist. Prof. Shao Zhuze]	AEC	Chem/Bio
		Environmental Analytical Chemistry	Development of Chemical Motifs for Environmental and Biomedical Analysis [Prof. Nobuhiko Iki / Assist. Prof. Ryota Sawamura]	AEC	Chem/Bio
		Environmental Bioengineering	Development of Environmental/Biomedical Sensors and Visualization Systems for Material Functions with Micro/Nano Electrodes [Prof. Hitoshi Shiku ^{GSE} / Assoc. Prof. Kosuke Ito ^{GSE}]	AEC	Chem/Bio
	Sustainable Recycle Process	Environmental Green Process Study	Advancement of model-based process development for sustainable circular society [Prof. Yasuhiro Fukushima / Prof. Masaru Watanabe ^{GSE} / Assoc. Prof. Hajime Ohno / Assist. Prof. Koki Yagihara / Assist. Prof. Yuki Matsuda]	AEC	Chem/Bio
		Mechanics and Design of Composite Materials	Design, development and evaluation of multi-functional composite materials [Prof. Fumio Narita / Assoc. Prof. Hiroki Kurita / Assist. Prof. Zhenjin Wang]	EmP	Materials
Ecomaterial Design and Process Engineering	Environmentally-Benign Molecular Design and Synthesis	Innovative experimental and theoretical technologies on chemical engineering for creating sustainable society [Assoc. Prof. Masaki Ota ^{GSE}]	AEC	Chem/Bio	
	Environmental Materials Surface Science	Atomic-level design of novel catalyst materials for eco-friendly society [Prof. Naoto Todoroki / Assist. Prof. Yao Fangyi]	EmP	Materials	
Cooperative Divisions	Earth and Environmental Systems Design	Energy Conversion Chemistry	Research on innovative materials for advanced batteries with high performance and low environmental impact [Prof. Itaru Honma ^{IMRAM} / Assoc. Prof. Saneyuki Ohno ^{IMRAM} / Assoc. Prof. Kazuyuki Iwase ^{GSE} / Assist. Prof. Moriyuki Kanno ^{GSE}]	AEC	Chem/Bio
		Polymer Hybrid Nanomaterials	Reveals the core of hierarchical structural dynamics of hybrid nanomaterials using synchrotron X-ray analysis [Prof. Maiko Nishibori ^{SRIS} / Lecturer Sachiko Ohyama ^{SRIS} / Assist. Prof. Kakeru Ninomiya ^{SRIS}]	AEC	Chem/Bio
	Society of Northeast Asia	Study on Multicultural Society	We provide students with knowledge and skills required for specialists in Social Anthropology and Northeast Asian Studies [Assoc. Prof. Toshihiro Ueno ^{CNEAS} / Assoc. Prof. Yongchao Cheng ^{CNEAS}]	CES	Human/Social
		Cultural Ecology and Conservation	We explore the sustainable future of human-nature relations through the anthropological fieldwork reflecting the cultural diversities in human history [Prof. Hiroki Takakura ^{CNEAS}]	CES	Human/Social
		Japanese History	Studies of the history of Edo period from analyzing original historical documents that remaining in the local communities of Japan [Assoc. Prof. Daisuke Sato ^{IRIDeS}]	CES	Human/Social
		Environmental Governance & Transformation	Examining global environmental governance and its transformation from traditional social science, interdisciplinary, and transdisciplinary perspectives [Assoc. Prof. Atsushi Ishii ^{CNEAS}]	CES	Human/Social
		Comparative Socio-Political Studies	Study Comparative State and Nation Formation in East Asia, including prewar Japan, to understand political societies [Assoc. Prof. Kento Takashiro ^{CNEAS}]	CES	Human/Social
		Culture of Northeast Asia	Environmental Anthropology	Mixed methods research on human-environmental interactions in societies for resilience amid climate change and increasing disasters [Prof. Alyne Elizabeth Delaney ^{CNEAS}]	CES
	Culture of Northeast Asia	Cultural Evolution	Quantitative analysis of cultural phenomena in human history, with the development of theories, methods, and academic infrastructure supporting such research [Assoc. Prof. Kohei Tamura ^{CNEAS}]	CES	Human/Social
		Memory and Social Dynamics	This course studies memory, history, and society in East Asia in relation to mutual influences, by field research and historiographical methods [Assoc. Prof. Yumi Ishii ^{CNEAS}]	CES	Human/Social
		Disaster and Society Studies	We study disasters and crises through a socio-cultural lens, promoting interdisciplinary, practice-based education, research, and community inclusion [Assoc. Prof. Sébastien P. Boret ^{IRIDeS}]	CES	Human/Social
		Physical Chemistry for Environmental Materials	Chemistry for Environmental Inorganic Materials	Development of advanced optical functional and environmentally sensitive materials by soft chemistry process [Prof. Shu Yin ^{IMRAM} / Assoc. Prof. Takuya Hasegawa ^{IMRAM} / Assist. Prof. Ayahisa Okawa ^{IMRAM}]	AEC
	Hybrid Nanosystem		Development of Hybrid Materials based on Multidisciplinary Precise Synthesis Across Organic, Inorganic, and Bio towards Sustainable Society [Prof. Kiyoshi Kanie ^{IMRAM} / Lecturer Masaki Matsubara ^{IMRAM} / Assist. Prof. Megumi Suyama ^{IMRAM} / Assist. Prof. Takehiro Yachi ^{IMRAM}]	AEC	Chem/Bio
	Hybrid Carbon Nanomaterials		Synthesis of hybrid nanocarbons using controlled nanospace as a reation field and their application to advanced fields [Prof. Hirotomo Nishihara ^{AIMR}]	AEC	Chem/Bio
	Environmental System and Materials	Analytical Sciences for Environmental Evaluation	Development of environmentally suitable materials through materials characterization and analysis [Prof. Masashi Watanabe ^{IMR} / Assoc. Prof. Kazuaki Kawahara ^{IMR}]	EmP	Materials
		Hydrogen Functional System Materials	Hydride Research for Innovative Energy Applications [Prof. Shin-ichi Orimo ^{AIMR} / Assoc. Prof. Toyoto Sato ^{IMR} / Assist. Prof. Yusuke Ohashi ^{IMR}]	EmP	Materials
Endowed Division		Innovative Analytical Pyrolysis	Development of analytical methods and instruments for polymer characterization by Pyrolysis-GC/MS [Prof. Toshiaki Yoshioka / Assoc. Prof. Atsushi Watanabe ^{FL} / Assoc. Prof. Shogo Kumagai ^{GSE} / Assist. Prof. Siqingaowa Borjigin]	AEC	Chem/Bio
Joint Research Division		YKK AP Circular and Functional Materials	Development of circular functional composites from architectural products waste for recycling [Prof. Fumio Narita / Assoc. Prof. Hiroki Kurita / Assoc. Prof. Shogo Oda ^{YKK AP Inc.} / Assist. Prof. Zhenjin Wang]	EmP	-
Collaborative Divisions		Process Engineering for Environmentally Adapted Materials	Development of new steelmaking technology contributing to the energy and resources sustainable society [Prof. Masaru Matsumura ^{NS} / Prof. Tomohiko Omura ^{NS} / Prof. Shinya Nariki ^{NS}]	EmP	Materials
		Global Environment	Observation of Global Atmospheric Environment and Carbon Cycle Changes [Prof. Shinichirou Nakaoka ^{NIES} / Prof. Hisashi Yashiro ^{NIES}]	CES	Env/Geo

Division		Laboratory	Research Theme [Faculty Members]	Educational Courses	Entrance Examination Groups
Core Divisions	Resources Strategies	Geo-environmental Measurement and Analysis	Measurement, observation and equipment development for understanding of various geosphere information [Assist. Prof. Nobuo Hirano]	-	Energy
		Design of Environment-friendly Materials	Design of materials harmonizing with environment and life [Prof. Masanobu Kamitakahara / Assist. Prof. Masaki Umetsu]	-	Energy
		Geoenvironmental Remediation	The Development of Environmental Friendly Biotechnologies for Pollution Remediation and Resource Recovery [Assoc. Prof. Mei-Fang Chien / Assist. Prof. Ning Han]	-	Energy
		Geomaterial and Energy	Geo-environmental systems driven by fluid-rock reactions [Prof. Atsushi Okamoto / Assist. Prof. Otgonbayar Dandar / Assist. Prof. Ryosuke Oyanagi] Development of subsurface measurement technologies for energy utilization on environmental issue [Prof. Hirokazu Moriya ^{GSE}]	-	Energy
		Resource Circulation and Environmental Applications	Efficiently cycling resources and CO ₂ for a cleaner environment [Prof. Atsushi Iizuka / Assist. Prof. Hsing-Jung Ho]	-	Energy
		Environmental Harmony System Science	New way of advanced utilization of geo-environment and energy/resource development [Prof. Kiyotoshi Sakaguchi / Assoc. Prof. Tomoaki Satomi / Assist. Prof. Kazumasa Sueyoshi]	-	Energy
		Frontier Science for Environmental Functional Materials	Development of Functional Non-Metal Light Element Materials for a Sustainable Society [Prof. Yoshinori Sato]	-	Energy
	Energy Resources	Distributed Energy System	Toward the development of sustainable energy system [Prof. Kazuhisa Sato / Prof. Yoshihito Ozawa/ Assist. Prof. Mina Yamaguchi]	-	Energy
		Resources and Energy Security	The Deepening of Geo-Environmental Science and Sustainable Resource and Energy Development [Prof. Noriaki Watanabe / Assist. Prof. Jiajie Wang / Assist. Prof. Eko Pramudyo / Assist. Prof. Luis José Salala Santos]	-	Energy
		Designing of Nano-Ecomaterials	Development of functional nano-ecomaterials for energy and environment in the environmentally benign systems [Prof. Hideyuki Takahashi / Assoc. Prof. Shun Yokoyama / Assist. Prof. Koji Yokoyama]	-	Energy
		Decarbonized Energy and Process Systems Engineering	Development of micro-to-macro-scale decarbonized energy systems and required elemental technologies [Prof. Muhammad Aziz]	-	Energy
	Environmental Policies	Environmental Urban Energy	To realize carbon neutrality, we conduct research on socio-techno-economic transition and facilitate urban decarbonization process [Prof. Katsuhiko Naito / Prof. Jusen Asuka / Assoc. Prof. Takuro Kobashi / Assist. Prof. Tuo Zhang / Assist. Prof. Tao Linwei]	-	Human/ Social
		Environmental and Energy Economics	Integrated analysis of material flows and economic activities contributing sustainable resource management [Prof. Kazuyo Matsubae / Assist. Prof. Zhengyang Zhang / Assist. Prof. Binze Wang]	-	Human/ Social
		Industrial Ecology	Understanding the environmental impacts of global supply chain and consumption [Assoc. Prof. Keiichiro Kanemoto / Assist. Prof. Yuya Katafuchi / Res. Assoc. Megumi Hoshi]	-	Human/ Social
Ocean Economy and Policy		Data-driven ocean governance for a sustainable ocean economy [Prof. Gakushi Ishimura]	-	Human/ Social	
Multiscale Socio-Environmental Dynamics		Societal impacts of climate change from local to global scales [Assoc. Prof. Kaoru Kakinuma ^{FRIS}]	-	Human/ Social	
Cooperative Divisions	Advanced Policies for Environment	Powder Processing for Functional Materials	Earth-friendly Environmental Powder Technology [Prof. Junya Kano ^{IMRAM} / Assist. Prof. Kizuku Kushimoto ^{IMRAM}]	-	Energy
		Extraction of Crustal Energy	Application of extreme environments in the earth's crust and unconventional energy resources for sustainable human life [Assoc. Prof. Yusuke Mukuhira ^{IFS}]	-	Energy
		Metallurgy and Recycling System for Metal Resources Circulation	For Achievement of Sustainable Society [Prof. Etsuro Shibata ^{IMRAM} / Assist. Prof. Ken Adachi ^{IMRAM}]	-	Energy
		Energy and Environmental Materials Creation	Development of new energy materials and environmentally-conscious materials for opening up our future [Prof. Takahisa Omata ^{IMRAM} / Assoc. Prof. Issei Suzuki ^{IMRAM} / Assist. Prof. Tomoyuki Yamasaki ^{IMRAM}]	-	Energy
		High-temperature Physical Chemistry of Materials	Bring innovation to materials processing [Prof. Hiroyuki Fukuyama ^{IMRAM} / Assoc. Prof. Makoto Ohtsuka ^{IMRAM} / Assoc. Prof. Masahito Uchikoshi ^{IMRAM} / Assoc. Prof. Masayoshi Adachi ^{IMRAM}]	-	Energy
Endowed Divisions	Control of Environmental Materials DOWA Holdings Co.,Ltd.	Environmental Policy and Impact Assessment	Assessment of the social and environmental impacts of resource use for better management of anthropogenic stocks and flows [Prof. Kazuyo Matsubae / Prof. Tomoki Nakaya / Prof. Minoru Tobita ^{DOWA} / Assoc. Prof. Masahito Yoshimura ^{DOWA}]	-	※
		Environmental Process Science	Development of material synthesis and recycling processes necessary for resource circulation [Prof. Tomohito Kameda / Prof. Balachandran Jayadevan / Assoc. Prof. Mei-Fang Chien / Assoc. Prof. Masahito Yoshimura ^{DOWA}]	-	Energy
		Environmental Policy Implementation Studies	Development and social implementation of sustainable technologies for resource circulation and treatment of waste [Prof. Toshiaki Yoshioka / Prof. Yuko Saito]	-	Human/ Social
	Course for Environmental harmony design of hard materials		Development of designing(simulation) study for maximum properties and environmental harmony in cemented carbide and other hard materials [Prof. Masaru Kawakami ^{Fuji Die Co., Ltd.} / Prof. Masanobu Kamitakahara / Prof. Atsushi Okamoto / Prof. Noriaki Watanabe / Assist. Prof. Sota Terasaka]	-	Energy
	Course for Environmental harmony material design		Design and development of novel photocatalytic materials for enabling environmentally sustainable energy systems [Prof. Akira Kishimoto ^{Nittetsu Mining Co.,Ltd.} / Prof. Hideyuki Takahashi / Prof. Yoshinori Sato]	-	Energy
Collaborative Divisions	Environmental Risk Assessment		Studies for utilization of safe and secure geothermal energy [Prof. Yasuhide Sakamoto ^{AIST} / Assoc. Prof. Kyosuke Okamoto ^{AIST}]	-	Energy
	Innovation for Regional Environment		Academic foundation for creative innovation in the local environment by promoting the development of carbon-neutral technologies [Prof. Noriyoshi Tsuchiya ^ / Prof. Takayuki Saito ^ / Prof. Tetsuo Honma ^ / Assoc. Prof. Yoshihiro Kadoma ^{AIST} / Assoc. Prof. Suntae Lee ^ / Assoc. Prof. Daisuke Maruoka ^] ^ National Institute of Technology, Hachinohe College	-	※
	Course on International Mineral Resource Strategy		Development of Experts in Resource Circulation and Environmental Economics [Prof. Takashi Ooka ^{JOGMEC} / Prof. Kazuyo Hirose ^{JOGMEC}]	-	-

Those who wish to apply for the laboratories with the sign ※, please contact the Academic Affairs Section in advance.

- Education Courses

AEC : Applied Environmental Chemistry CES : Cultural Environmental Studies DSci : Disaster Science EmP : Eco-materials and Processing
- Entrance Examinatoin Groups

Human/Social : Human and Social Science Group Env/Geo : Environment and Geography Group Chem/Bio : Chemistry and Bioengineering Group Materials : Materials Group Energy : Environmental & Energy Group
- TU Research Institutes

AIMR : Advanced Institute for Materials Research CNEAS : Center for Northeast Asian Studies FRIS : Frontier Research Institute for Interdisciplinary Sciences IFS : Institute of Fluid Science
GGI : Green Goals Initiative GSE : Graduate School of Engineering IMR : Institute for Materials Research IMRAM : Institute of Multidisciplinary Research for Advanced Materials
IRIDeS : International Research Institute of Disaster Science SRIS : International Center for Synchrotron Radiation Innovation Smart
- External Institutions

AIST : National Institute of Advanced Industrial Science and Technology JOGMEC : Japan Organization for Metals and Energy Security NIES : National Institute for Environmental Studies
- Private Sector

FL : Frontier Laboratories Ltd. NS : NIPPON STEEL CORPORATION





It goes without saying that it is extremely difficult to find a solution to the complex intertwined environmental problems of the world. Different boundary conditions lead to different solutions, taking into account resource, energy, institutional, economic, and social/cultural aspects.

A step to open up the future

The faculty members of the Graduate School of Environmental Studies (GSES) are the top leaders in various academic fields not only in engineering and natural sciences but also in social sciences and the humanities. They have been leading their own fields and, at the same time, have communicated with each other to find a common horizon for Environmental Studies. Now, based on those achievements, we will take a step further toward a practical use of Environmental Studies, where we will be able to indicate a way to solve environmental issues by connecting the knowledge from diverse fields.

Now, many countries and regions in the world have committed to achieve carbon neutral operation by 2050. However, the path to reach this goal is still in a fog. Finding the route will be tasked to the present teenagers and those in their twenties. My desire is that the young people who are, or will be, studying in GSES will acquire skills in the specialized fields and play important roles in the community, society, and in the world. Furthermore, I hope they will obtain the ability to grasp the issues from a bird's-eye view to select a better future for themselves and for others.

GSES started with a single department of Environmental Studies, which was reorganized into the two departments of Environmental Studies for Advanced Society and Frontier Sciences for Advanced Environment in 2015, and has provided unique educational curriculums. Many international programs, as well as training programs, have been offered to achieve our educational goal. I hope the students will actively utilize these chances to deepen their studies.

There is never just one "step toward the future" that can be obtained from a variety of research menus. Let's move forward together toward the future, figuring out how to connect various steps and how to open up new opportunities.

Professor **Toshiaki Yoshioka**
Dean, Graduate School of Environmental Studies,
Tohoku University

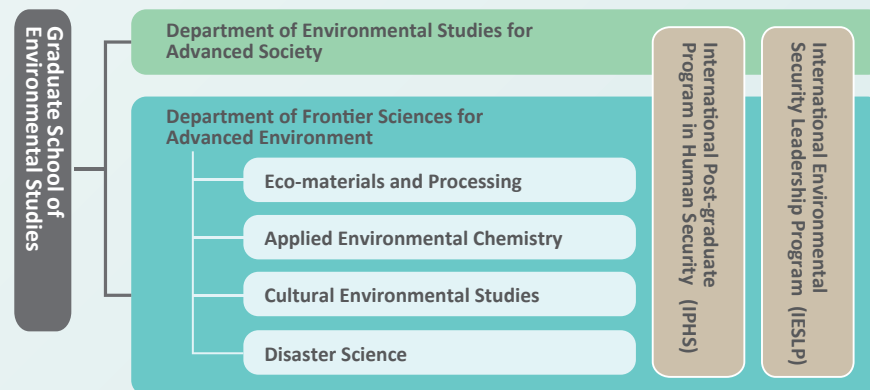
T. Yoshioka



Message from the Dean

About GSES

The Graduate School of Environmental Studies offers 2 schools: the Department of Environmental Studies for Advanced Society and the Department of Frontier Sciences for Advanced Environment, the Department of Frontier Sciences for Advanced Environment consists of four educational courses.



The Graduate School of Environmental Studies is intended to create a social system that can become bases of a cultural and recycle-based society which supports sustainable development by integrating the "knowledge" of Tohoku University as a comprehensive university. The purpose of our education is to train people to acquire high-level knowledge and skills and to become individuals who can tackle myriad challenges on a global scale.

Department of Environmental Studies for Advanced Society

This department aims at an education to nurture human resources with an ability to create solutions to the environmental problems that threatens human society. The department welcomes students who have a strong interest in the environmental aspects of civilization and thinking, who have a good understanding of the realities of social sciences and policy, who would like to obtain a solid basic knowledge on various technologies, and who can meet the challenge of integrating these towards creating innovative solutions. Moreover, we are looking for students who would like to cultivate an ability to provide a direction for society from a global perspective.

Department of Frontier Sciences for Advanced Environment

This department aims at an education to nurture human resources with an ability to manage advanced environmental technologies from an international bird's-eye perspective of the environmental problems that threaten human society. The department welcomes students who would like to study and acquire environmental expertise in fields such as geo-system and energy science, environmental chemistry and ecoengineering, eco-material design and process engineering, and Disaster Science. Students should have a strong motivation to explore outside of their own field from the broad perspective of environmental sciences, and study together with international students from other Asian countries. We expect students to wish to lead in their advanced research on the environment by integrating their deep specialisms with an international perspective and broad background knowledge.

International Environmental Security Leadership Program (IESLP)

The International Environmental Security Leadership Program (IESLP) is a graduate educational program established within the Graduate School of Environmental Studies with the support of the Japanese Government Scholarship for International Students. This program, launched in response to the growing number of cases of infectious diseases, aims to develop leaders who can solve environmental security issues such as social environment, living environment, and infectious diseases, with ASEAN countries as the focus countries.

In addition to classes in the regular graduate education curriculum, students will receive a number of advanced education courses necessary for developing international environmental security leaders, enabling them to acquire a broad range of background knowledge, including advanced, practical skills with an international perspective. All classes are conducted in English, with some cultural and lifestyle discussions conducted in both English and Japanese, and IESLP faculty members conduct advanced courses and seminars that are deeply relevant to international environmental security leaders. Students enroll in courses and majors.

<https://www.kankyo.tohoku.ac.jp/ielp/>

Educational courses

► Eco-materials and Processing

This course teaches and researches the fields of resources, materials and energy which are critical to sustainable human society. Specifically, students will acquire advanced knowledge in areas such as raw material processing, catalytic materials, composite materials, energy storage materials, and materials characterization, all of which contribute to environmental protection and the reduction of environmental impact. In addition, students can deepen your basic knowledge of humanities and social science.

► Applied Environmental Chemistry

Reducing the environmental impact of converting natural resources into chemicals and materials is a critical challenge. This course equips students with advanced knowledge to pioneer innovative, eco-friendly manufacturing processes. Additionally, students deepen their understanding of environmental and economic assessments to drive sustainable production.

► Cultural Environmental Studies

In addition to the technical objectives, it is also necessary for a sustainable human society to solve cultural challenges related to the social system. Together with acquiring knowledge of sciences, you can study research fields that directly connect society, such as social history, social anthropology, environmental law, environmental policy, environmental economics, and technology management.

► Disaster Science

Disasters and the environment are closely interlinked, as exemplified by the intensification of storm and flood disasters associated with climate change; therefore, for the sustainability of human society, it is vital to build a resilient world with addressing environmental issues and Disaster Risk Reduction (DRR) at the same time. Accordingly, with a view to spearheading the International Strategy for DRR, students gain an understanding of the fundamental principles of the Sendai Framework for DRR—such as “Pre-disaster DRR investment” and “Build Back Better”—based on Japan’s development experience, and acquire knowledge in disaster science. Students also deepen our practical understanding of how to optimize development with DRR investment as a whole society.



International Post-graduate Program in Human Security (IPHS)

The International Post-graduate Program in Human Security is an interdisciplinary international education program centered around the concept of Human Security. It integrates the fields of health, food and agriculture, environment, and disaster risk reduction (DRR). From 2005, the program was jointly offered by the Graduate School of Environmental Studies at Tohoku University in collaboration with the Graduate Schools of Medicine, Agricultural Science, and International Cultural Studies (until 2018). The program offered interdisciplinary lectures through cooperation among three primary graduate schools and two affiliated schools—the Graduate School of International Cultural Studies and the Graduate School of Engineering.

Starting in April 2025, in addition to the existing "Human Security and Environment" course, a new "Human Security and DRR" course will be launched. The Environment course aims to develop professionals who can contribute to sustainable development by addressing environmental risks and climate change. The newly established DRR course focuses on disaster risk assessment, urban resilience, and optimizing pre-disaster investments. It is designed to support the career development of practitioners, including those from middle-income countries.

<https://www.kankyo.tohoku.ac.jp/en/intlprograms.html>

Voice



Gansukh Sodgerel

Environmental and Energy Economics (Matsubae Lab.)
Enrolled in 2024
Mongolia

As a master's student, my research focuses on assessing the environmental impacts of copper production in Mongolia through the life cycle assessment approach. I am particularly interested in how energy systems and global demand influence environmental performance in resource-producing countries.

My goal is to contribute to the development of scientifically grounded, internationally relevant knowledge that supports sustainable resource management. I hope my work will help shape long-term environmental solutions for future generations to make informed decisions that balance environmental protection with economic development.

GSES offers a supportive and inclusive academic environment with dedicated professors and strong support for both domestic and international students. I encourage future students to actively discuss and collaborate across disciplines. If you are motivated to tackle real-world environmental challenges with both scientific rigor and global perspective, GSES will provide the support and inspiration to shape a meaningful future.



Ndjate Vinny Katambwe

Resource Circulation and Environmental Applications (Iizuka Lab.)
Enrolled in 2024
Democratic Republic of the Congo

My decision to pursue postgraduate studies at Tohoku University (TU) was largely influenced by meeting Professor Iizuka and Dr. Ho in 2022. I was eager to work under their supervision and mentorship. After learning about TU's strong research culture and emphasis on sustainability and resilience, the choice was easy. I believed that joining the Graduate School of Environmental Studies (GSES) through the International Environmental Security Leadership Program (IESLP) would equip me with the skills to contribute meaningfully to environmental solutions. My current research focuses on mineral carbonation as a CO₂ mitigation strategy, contributing to efforts that address climate change and help safeguard the environment.

GSES is an excellent choice for studying because of its interdisciplinary and research-oriented approach to real-world environmental challenges. The program provides a strong academic foundation, hands-on research opportunities, advanced facilities, and mentorship from experienced faculty at a globally recognized university. Its international learning environment and focus on sustainability, resilience, and innovation make GSES a high-quality, future-oriented institution that prepares students for diverse careers in research, policy, industry, and international organizations.

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