Science, Technology and Innovation Policy Program (STI)(Doctoral)

Purpose of the Program

This program aims to develop highly skilled professionals who can plan, propose and implement, evaluate, and revise science and technology innovation policies and strategies, as well as researchers with advanced research capabilities in science and technology innovation policies, using scientific approaches in line with advanced academic and practical expertise in science and technology innovation policies.

In a knowledge-based society, where knowledge has a major impact on economic and social development, the role of science, technology, and innovation policies is rapidly increasing not only for the development of scientific knowledge but also for the creation of new industries and the resolution of social issues such as the SDGs. Also, in the age of digitization, the methodology of research development and innovation has changed, and it is necessary to understand how policies and management should be. This program aims to develop highly skilled professionals who can design and propose effective science and technology innovation policies (including science policy, industrial technology policy, innovation policy, environmental policy, energy policy, etc.) using scientific approaches at national and local governments, universities, public institutions, and companies, as well as researchers who conduct research and education on science and technology innovation policies at universities and public research institutes.

Diploma Policy

This program confers a degree in Policy Studies or Public Policy (Doctor of Policy Studies, or Ph.D. in Public Policy) on students who: have been enrolled for the designated number of years; have acquired the designated number of credits based on the curriculum of the program; have passed the Qualifying Examination; and have written and defended successfully their doctoral dissertation.

In this program, <u>students should acquire the following qualities and abilities</u>:

1. Have advanced academic and interdisciplinary expertise in science,

technology, and innovation and policies, and the ability to apply them to policy issues in multiple ways.

2. Have a wide range of knowledge on public policies, and the ability to understand science, technology, and innovation policies within this context and analyze them from a multifaceted perspective.
3. The ability using scientific approach, for issues related to science and technology innovation policy, to set up problems based on past scientific knowledge, to construct hypotheses, to conduct independent analysis using various quantitative and qualitative data including data specific to science and technology innovation, to compile research papers and policy proposals, and to present them to policy makers and communicate them.
4. Have a high level of understanding on the formulation and implementation of science and technology innovation policies and the ability to make practical policy recommendations that bridge theory and practice
5. The ability to act as a leader by respecting different values and systems in a global society and understand especially science, technology, and innovation policies and is willing to communicate with others.

Curriculum Policy

【Basic Policy】

The program aims to develop highly skilled professionals and researchers who can plan, propose, implement, evaluate, and modify science, technology, and innovation policies and strategies using scientific approach. In order to develop the advanced policy research capabilities and the ability to plan and implement policies and strategies that are required of such human resources, students will be required to acquire multiple necessary disciplines, as well as analytical skills in various fields of social science, teaching skills in higher education, and advanced foreign language skills.

【Structure of the Curriculum】

This program is a three-year program, and the first year is designed to enable students to acquire interdisciplinary knowledge and methodology through course work to acquire academic theories and analytical methods, mainly in the field of science, technology, and innovation policy. Students will develop practical skills in policy-making through discussions and group work in courses including practical training. From the 2nd year onward, students will focus on

"research seminar" and cultivate their research ability through research and presentation of their doctoral dissertations.

(Required Courses)

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(Elective Courses)

The compulsory elective courses offer a variety of subjects, including science and technology innovation policy, innovation theory, university theory, industry-academia collaboration, science and technology diplomacy, science and technology innovation policy in developing countries, methodology for evaluation and indicators, and environmental and energy policies, so that students can choose a wide range of subjects that are relevant to their area of interest. In addition, as elective courses, we offer courses on public policy, which are conducted universally, courses to acquire education as a globally active administrative officer, courses to enhance academic writing in English for writing papers, courses and workshops to provide academic ethics education for writing papers, and provide a curriculum to develop well-balanced human resources. In consultation with their advisors, students will select from these courses based on their research theme and acquire the knowledge and skills required for their doctoral dissertation.

【Policies on Education and Study Methods】

The compulsory elective courses offer a variety of subjects, including science and technology innovation policy, innovation theory, university theory, industry-academia collaboration, science and technology diplomacy, science and technology innovation policy in developing countries, methodology for evaluation and indicators, and environmental and energy policies, so that students can choose a wide range of subjects that are relevant to their area of interest. In addition, as elective courses, we offer courses on public policy, which

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【Assessment Policy】

In grading for each course, the degree of attendance, contribution to class, examination, report submission, etc. will be taken into consideration, and the acquisition and understanding of knowledge and practical skills will be evaluated relatively in principle. For doctoral dissertations, students are allowed to advance to the doctoral dissertation stage by passing the doctoral dissertation qualification exam (QE), and after submitting a doctoral dissertation, a defense will be held to evaluate their overall ability.

Admissions Policy

Target Students

This program accepts applicants working in the field of science, technology and innovation at national and international ministries and local governments, as well as officers working in affiliated organizations, universities, research institutes, funding agencies, private organizations, etc., in the position to make proposals, to plan and manage them in the field of science, technology and innovation. The program also accepts applicants who aim to become researchers or educators at universities or research institutes, etc., and wish to learn advanced knowledge in this field, publish academic research results, and formulate policies based on scientific grounds.

Prior to admission, students are required to have the basic academic skills required for a master's degree, regardless of the field of study, to set, carry out and report on research subjects. Students should have basic knowledge of mathematics and academic English at the level of university admission. Working people are expected to have more than three years of practical experience in related fields.

Evaluation methods and Standards

[Screening by documents]
We will conduct an examination based on the application documents.
The selection process is based on a comprehensive evaluation of past work experience, the content of evaluations by two recommenders, the content of study and academic achievement of a master's degree or higher, the originality of the research plan and the relevance to the research subject, the concreteness of the problem, the content of the master's thesis, etc.

[Interview]
At the interview, we will confirm the reasonableness and accuracy of the applicant's answers to the questions. We will also select applicants based on their sense of purpose for their research subjects, their willingness to study, and the clarity of their career plans after completion of their studies.

Curriculum Map: Science, Technology and Innovation Policy Program (STI) Doctoral

Category	Course No.	Course Name	Diploma Policy 1 1. Have advanced academic and interdisciplinary expertise in science, technology, and innovation and policies, and the ability to apply them to policy issues in multiple ways.	Diploma Policy 2 2. Have a wide range of knowledge on public policies, and the ability to understand science, technology, and innovation policies within this context and analyze them from a multifaceted perspective.	Diploma Policy 3 3. The ability using scientific approach, for issues related to science and technology innovation policy, to set up problems based on past scientific knowledge, to construct hypotheses, to conduct independent analysis using various quantitative and qualitative data including data specific to science and technology innovation, to compile research papers and policy proposals, and to present them to policy makers and communicate them.	Diploma Policy 4 4. Have a high level of understanding on the formulation and implementation of science and technology innovation policies and the ability to make practical policy recommendations that bridge theory and practice	Diploma Policy 5 5. The ability to act as a leader by respecting different values and systems in a global society and understand especially science, technology, and innovation policies and is willing to communicate with others.
I Required Courses	STI8011E	Research Seminar I	○		◎	△	△
	STI8021E	Research Seminar II	○		◎	△	△
	STI8031E	Research Seminar III	○		◎	△	△
	STI8041E	Research Seminar IV	○		◎	△	△
II Recommended Courses	ECO7721EA	Introduction to Applied Econometrics (Advanced)		◎			
	ECO7881E	Trade and Industrial Development		◎			
	ECO8841EA	Development Economics (Advanced)		◎			
	MOR7011E	Quantitative Data Analysis		◎	○		
	MOR1100J	政策科学のためのデータサイエンスと情報数理 Ⅰ			◎		
	MOR2100J	政策科学のためのデータサイエンスと情報数理 Ⅱ			◎		
	DMP8850E	International Policies on Water and Disasters	△	△		◎	○
	GOV7201EB	Advanced International Relations		○			◎
	STI6001E	Economics of Innovation	△	◎	△		
	STI6011J	科学技術政策過程論	◎	○		◎	◎
	STI6061J	科学技術イノベーション政策概論	◎	△	△	△	△
	STI6071J	公的機関からのイノベーション創出	◎	△	△	△	△
	STI6081J	科学技術イノベーション政策立案演習	◎	△	△	△	△
	STI6091E	Politics of Innovation	◎				
	STI6101J	イノベーションと経済学	△	◎	△		
	STI6111J	科学技術イノベーション政策のためのミクロ経済学		◎	◎	△	
	STI7031E	Bibliometrics and Applications	◎		◎		
	STI7031J	ビブリオメトリクスとその応用	◎		◎		
	STI7061E	Policy for Higher Education and University-Industry Cooperation	◎	△	△	△	△
	STI7061J	高等教育・産学連携政策	◎	△	△	△	△
	STI7071J	科学技術外交論	◎	○		◎	◎
	STI7081E	Comparative Analysis of Science, Technology and Innovation Policy: Asian Experiences	○	△		○	△
	STI7151E	Comparative Paths of Science, Technology and Innovation Policy	◎	△	△		△
	STI7151J	科学技術イノベーション政策の史的比較	◎	△	△		△
	STI7161E	Outline of Energy Policy	△	◎	△	△	△
	STI7171E	Energy and Environmental Science&Technology	◎	○	△	△	△
	STI7180E	Advanced Energy Policy	△	△	△	◎	△
	STI7191E	Roles of Intellectual Property Rights in Globalized World	◎	△	△	△	△
	STI7201J	科学技術とアントレプレナーシップ	○		◎	△	△
	STI7211E	Science, Technology and Innovation Policy in Developing Country Context	◎	△	△	△	△
	STI7221J	科学技術イノベーション政策と評価 (Evaluation of Science, Technology and Innovation Policy)	◎	△	△	△	△
	STI7231E	Energy Data Analysis	△	△	◎	△	△
	STI7241E	History of Japanese Science, Technology and Innovation Policy	◎	△	△	△	△
	STI7251J	計量分析演習			◎	○	
	STI7261J	科学技術行政システムと指標	◎	△	△	△	
	STI7271J	知的財産マネジメント Ⅰ	◎	△	△	△	△
	STI7281J	知的財産マネジメント Ⅱ	◎	△	△	△	△
	STI8051E	Energy Security	△	△	◎	△	△
	STI8061E	Energy Policy in Japan	△	◎	△	△	△
	STI8071E-STI8081E	Research Seminar V-Ⅵ	○		◎	△	△
	STI8101J-STI8131J	科学技術イノベーション政策特論 Ⅰ-Ⅳ	◎	△	△	△	

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	STI8141-STI8151J	科学技術イノベーション政策特論Ⅴ-Ⅵ	△	△	△	◎	△
	STI8161J-STI8171J	科学技術イノベーション政策特論Ⅶ-Ⅷ	◎	△	△	△	
III Elective Courses		Courses not listed on this table		◎	△	△	○

◎Highly relevant ○Relevant △Partially relevant