Chapter 6
Requirements for Acquiring the Certificate of Each Program and Professional Course

1. Certificates

In addition to the master's degree, master's students in the Graduate School of Media and Governance can acquire certificates from each Program and Professional Course if they fulfill the requirements. Acquiring a certificate is not essential for a master's degree. Refer to Chapter 4 for the requirements to complete the master's degree.

2. Explanation of Each Program

Below are explanations of each program. The credit of all subjects is 2, except ones which are written the credit number behind. A list of program chairperson, academic advisors, members may be found on the website below.
https://www.students.keio.ac.jp/en/sfc/gsmg/class/registration/chairpersons-academicadvisors.html

*【-2017】: Those who enrolled in or before Academic Year 2017

*【2018-】: Those who enrolled in or after Academic Year 2018

Global Governance and Regional Strategy Program (GR Program)

Details on the GR Program are described at the following website:
https://www.sfc.keio.ac.jp/gsmg/en/education/program/gr.html

(1) Project Courses Related to the Program

Lifeworld and Publicness	Security Studies 1
China Perspectives	Security Studies 2
Islam Practice Studies	Global Governance and Regional Strategy (Global)
Area Studies for Global Governance	Global Governance and Regional Strategy (Regional)

Project courses which were conducted in/before 2018 are not on the list. Students who have any question with the subjects should ask the Academic Affairs Office.

(2) Requirements for Acquiring a GR Program Certificate

Students who have fulfilled all requirements in the GR Program will be awarded a Certificate of Program Completion. The name of the program on the certificate will be "Global Governance."

	Subject name	Minimum number of credits	Non-thesis Track
Program Courses*1	Global Governance Studies (Viewpoints), Global Governance Studies (Globalization and Regional Transformation), Practical Research Work for Global Issues, Global Partners Networking	At least 4 credits	At least 4 credits
Research Concept and Methodology Courses	Conceptual Framework (GR), Advanced Research (GR)	At least 4 credits	At least 4 credits
Project Courses	Global Governance and Regional Strategy (Global)(1), Global Governance and Regional Strategy (Regional)(1), Global Governance and Regional Governance (until Academic Year 2018)	At least 2 credits	At least 2 credits
Master Thesis	• 【-2017】:Master Thesis • 【2018-】: Master Thesis 1, Master Thesis 2 Non-Thesis Track: Master Project 1,Master Project 2	2 credits	【-2017】: None 【2018-】: 2 credits*2

*1 The four credits cannot be earned from "Practical Research Work for Global Issues" and "Global Partners Networking". Those in a double degree program with another university (double degree students) must earn at least two credits.
*2 Students must fulfill the requirements for Non-Thesis Track and register for Project Courses in their final semester.

Human Security and Communications Program (HC Program)

Details on the HC Program are described at the following website:
http://www.sfc.keio.ac.jp/gsmg/en/education/program/hc.html

(1) Project Courses Related to the Program

Humanities approach to modern society and culture	Multilingual and Multicultural Society
Interdisciplinary Japanese Studies	Language Learning & Teaching Design

Project courses which were conducted in/before 2018 are not on the list. Students who have any question with the subjects should ask the Academic Affairs Office.

(2) Requirements for Acquiring a HC Program Certificate

Students who have fulfilled all requirements in the HC Program will be awarded a Certificate of Program Completion. The name of the program on the certificate will be “Human Security and Communications.”
Students must earn 30 or more credits, including the credits earned from the following courses.*Courses marked with an asterisk (*) are conducted in English or offer support in English.

Students who enrolled in or after Academic Year 2018

	Subject name	Minimum number of credits	Non-Thesis Track
Program Courses	Language Education Design, Technology Project (Ledit Project), Transculture, Development and The Local Community*	At least 2 credits	At least 4 credits
Research Concept and Methodology Courses	Advanced Research (Language and Culture), Conceptual Framework (Communication), Advanced Research (Fieldwork in Developing Countries (Developing Regions of Asia)	At least 2 credits	At least 2 credits
Project Courses	the Project Courses related to the HC Program	At least 4 credits	At least 4 credits
Master Research	Master Seminar	At least 4 credits	At least 4 credits

*Courses Specifically Approved by HC Academic Advisor:
Register for the courses (from course categories) approved by HC program.
For details, please check with your academic advisor in HC program.

Policy Making and Social Innovation Program (PS Program)

Details on the PS Program are described at the following website:
https://www.sfc.keio.ac.jp/gsmg/en/education/program/ps.html

(1) Project Courses Related to the Program

Academic Projects in which the leader or member is a faculty member of the PS Program.

(2) Requirements for Acquiring a PS Program Certificate

Students who have fulfilled all requirements in the PS Program will be awarded a Certificate of Program Completion. The name of the program on the certificate will be “Policy Making and Social Innovation.”

	Subject name	Minimum number of credits	Non-Thesis Track
Program Courses	Business in Japan, Networks and The Information Economy, Strategic Management, Policy Management (Policy Making And Social Innovation), Governance Theory, Social Business and Its Evaluation, Governance of Local Government, Global Management of IT Business, Management Innovation in IT Business, Management and Governance of Government Institutions, Community Informatics, Social Finance, Techniques of Designing Career Development Programs, Technology Management, Network Industries, Finance Theory, Family Business Management, Total Design of Private and Public Profits 1, , Total Design of Private and Public Profits 2, Desing for Social Innovation, Product Development and Promotion of Social Business, Social Marketing, Public Management, Social Entrepreneurship, Health Communication	At least 10 credits	【-2017】: At least 12 credits 【2018-】: At least 10 credits
Undergraduate courses *1	Public Choice Theory, Management of Emerging Businesses, Social Security Policy (Medical Care And Health Care), Social Security Policy (Pension, Labor and Welfare), Theory of Games, Risk and Insurance, Introduction to Time-Series Analysis, Evidence Based Health Policy-Management and Communication, Multinational Management		
Research Concept and Methodology Courses *2	Conceptual Framework (Academic Communication Skills), Conceptual Framework (Research Design in Social Sciences), Conceptual Framework (Theories and Practice of Fieldwork), Conceptual Framework (Strategy and Institutional Design), Conceptual Framework (EG1), Conceptual Framework (EG2), Advanced Research (Public Policy), Advanced Research (Casebook Methods in Research and Education), Advanced Research (EG1), Advanced Research (EG2)	At least 4 credits	At least 4 credits
Project Courses Master Research Special Courses	• Project Courses related to the PS program • Master Seminars offered by the faculty member in charge of the PS Program (Students who enrolled in or before Academic Year 2017 must register for these courses as Special Courses, and students who enrolled in or after Academic Year 2018 must register for them as Master Research Courses.)	At least 8 credits	At least 8 credits
Master Thesis	• 【-2017】: Master Thesis • 【2018-】: Master Thesis 1(1), Master Thesis 2(1) Non-Thesis Track: Master Project 1(1), and Master Project 2(1)	2 credits	【-2017】: None 【2018-】: 2 credits

*1 Undergraduate courses will be Optional Subjects for the Master’s Program.
*2 You can include “Total Design of Private and Public Profits 1” and “Total Design of Private and Public Profits 2” for Research Concept and Methodology Courses.

***Other**

Up to four credits from courses related to the Business School, Program Courses in GR (including International Relations in GR-Heisetsu), and HC, may be included in the certificate requirements. Research Concept and Methodology Courses in GR and HC may also be included in the certificate requirements. Check with the Academic Advisor in charge of the Program beforehand.

Cognition, Sense-Making and Biophysical Skills Program (CB Program)

Details on the CB Program are described at the following website:
https://www.sfc.keio.ac.jp/gsmg/en/education/program/cb.html

(1) Project Courses Related to the Program

Academic Projects in which the leader or member is a faculty member in the CB Program.

(2) Requirements for Acquiring a CB Program Certificate

Students who have fulfilled all requirements in the CB Program will be awarded a Certificate of Program Completion. The name of the program on the certificate will be “Cognition, Sense-Making & Biophysical skills.”
Students must earn 30 or more credits.
*Students must obtain approval from the faculty member in charge of the Project Course or their Research Advisor for other courses to count toward the required number of credits.

	Subject name	Minimum number of credits	Non-Thesis Track
Program Courses, Research Concept and Methodology Courses, Special Courses	Sports And Skill Science Advanced Lecture, Aging Society, Conceptual Framework (CB), Advanced research (CB), Physical Activity and Health, Biomechanics and Motion Analysis (1 credit), Geriatric Medicine and Gerontology, Fieldwork A/B/C/D, Internship A/B *Program Courses, Master’s Research Courses, and Special Courses approved by your Research Advisor.	At least 8 credits	At least 10 credits
Project Courses Master Research Courses Special Courses	• Project Courses related to the CB Program • Master Seminars held by the faculty member in charge of the CB Program (【-2017】 register for these courses as Special Courses【2018-】 register for them as Master Research Courses	At least 8 credits	At least 8 credits
Master Thesis	• 【-2017】: Master Thesis • 【2018-】: Master Thesis 1(1), Master Thesis 2(1) Non-Thesis Track:Master Project 1(1), Master Project 2(1)	2 credits	【-2017】: None 【2018-】: 2 credits

Environmental Design and Governance Program (EG Program)

Details on the EG Program are described at the following website:
http://www.sfc.keio.ac.jp/gsmg/en/education/program/eg.html

(1) Project Courses Related to the Program

Science and Technology Communication	Smart Mobility (Technology)
Climate Change and Disaster Risk Governance System for Sustainable Development	Smart Mobility (Society)
Green infrastructure and ecosystem service	Human service and Community
Embodiment Design Program	xSDG

Project courses which were conducted in/before 2018 are not on the list. Students who have any question with the subjects should ask the Academic Affairs Office.

(2) Requirements for Acquiring an EG Program Certificate

Students who have fulfilled all requirements in the EG Program will be awarded a Certificate of Program Completion. The name of the program on the certificate will be “Environmental Design and Governance.”

	Subject name	Minimum number of credits	Non-Thesis Track
Program Courses ,	**Two credit courses**Space Law (until Academic Year 2015), Construction Management, Regional Environment, Urban Policy, Digital Earth Science, Safety In Environmental Design, History of City And Living Environment, Environmental Design Field Workshop, Environmental Technology And Space Design, Architectural Environment Management, Building Technology, Building Materials And Construction Technology, Structural Design Studies, Urban Design, Energy Policy Analysis, Landscape Design, Environmental Dynamics, Design of Urban Space, Advanced Spatial Data Modeling, Biodiversity Science, Geography of Planning Practice, Theory of Global Environment Technology, International Environmental Law, Systems of Earth, Energy and Global Environment, Population Dynamics, Global Environmental Politics, Designing a Low-Carbon Society, Designing Environmental Business, Ecological and Environmental Fieldwork、Environmental Technoscience and Policy、Practice in Environmental Monitoring、Sustainable System Science、Policy Management(Policy Making and Social Innovation)） **Four credit courses** Applied Environmental Design (Architecture And Landscape Design), Applied Environmental Design (Urban Environment Design), Exercise on Designing Low-Carbon Society 1, Exercise on Designing Low-Carbon Society 2.	At least 18 credits	At least 18 credits
Research Concept and Methodology Courses	Conceptual Framework (EG1), Conceptual Framework (EG1) Advanced Research (EG1), Advanced Research (EG2)	At least 2 credits	At least 2 credits
Project Courses	Project Courses related to the EG Program	At least 4 credits	At least 4 credits
Master Thesis	• 【-2017】: Master Thesis • 【2018-】: Master Thesis 1(1), Master Thesis 2(1) Non-Thesis Track: Master Project 1(1), Master Project 2(1)	2 credits	【-2017】: None 【2018-】: 2 credits

X-Design Program (XD Program)

Details on the XD Program are described at the following website:
https://www.sfc.keio.ac.jp/gsmg/en/education/program/xd.html

(1) Project Courses Related to the Program

Academic Projects in which the leader or member is a faculty member of the XD Program

(2) Requirements for Acquiring a XD Program Certificate

Students who have fulfilled all requirements in the XD Program will be awarded a Certificate of Program Completion. The name of the program on the certificate will be “Design.”
Students must earn at least 30 credits and pass the Product Portfolio evaluation. Submit the Product Portfolio to the Program Committee through your Academic Advisor.

	Subject name	Minimum number of credits
Program Courses , Research Concept and Methodology Courses	Design Theory, Research Foundations, Human Computer Interaction Design, Landscape Design, Advanced Research Workshop (XD1), Advanced Research Workshop (XD2), Advanced Research Workshop (XD3), Advanced Research Workshop (XD4) *Other: Other courses allowed into the Program Course category. Consult with the Research Advisor of the Program for details.	At least 10 credits
Project Courses	Academic Projects in which the leader or member is a faculty member of the XD Program	At least 6 credits
Master Thesis*	• 【-2017】: Master Thesis • 【2018-】: Master Thesis 1(1), Master Thesis 2(1) The Master Thesis must be made in the format designated by the Program.	2 credits (required)

Cyber Informatics Program (CI Program)

Details on the CI Program can be found at the following website:
http://www.sfc.keio.ac.jp/en/academics/graduate/program_m/ci.html

(1) Project Courses Related to the Program

Novel Computing: AI and Brain Science	HCI Remixed
Creation of Smart City	Internet Technology
Software System	Internet Civilization
Creating Shared Value in Practice	Mathematic for AI

Project courses which were conducted in/before 2018 are not on the list. Students who have any question with the subjects should ask the Academic Affairs Office.

(2) Requirements for Acquiring a CI Program Certificate

Students who have fulfilled all requirements in the CI Program will be awarded a Certificate of Program Completion. The name of the program on the certificate will be “Cyber Informatics.”
Students must earn 30 credits or more from the courses listed below.

	Subject name	Minimum number of credits
Program Courses Research Concept and Methodology Courses Special Courses	History and Future Possibility of the Internet, Design and Implementation of System Software, Software Development Methodology, Multimedia Knowledge Base Design and Implementation, Information Security -Theory And Practice, Ubiquitous Computing Systems, Object-Oriented Analysis, Knowledge Discovery Methods, Autonomous Decentralized Cooperative Systems, Conceptual Framework (CI), Advanced Research (CI), Internet Security Architecture, Topics in Advanced Information Technology Specialist Program 1, Topics in Advanced Information Technology Specialist Program 2, System Simulation, Advanced Parallel Processing, Web Intelligence, Topics in Computer Operating Systems, Advanced Course In Database Systems Design, Operation and Management Of Network Systems A, Design of Physically Grounded Communication System, Special Lecture 1 (Operating Systems), Systems Performance Evaluation, Information and Semantics, Theory of Computer Software, Software Engineering 1, Software Engineering 2, Software Engineering 3, Advanced Course on Natural Language Processing, Software Development Engineering, Advanced Course on Network Engineering, Information Security Management System B, Advanced Course on Computer Graphics, Open Source Systems, ITSP Internship, Modern Web Platform Technologies, Advanced Natural Language Processing, Human Interface, Parallel and Distributed Computing Systems, Advanced Computer Architecture, Human Computer Interaction Design, Future Internet Technology : Architecture and Building Blocks, Open Data and Management Organization, Environmental Information System Architecture, Information Security –Theory and Practice-, Cybersecurity Case Study, Software Security, Network Security, Cryptography and Data Security	At least 12 credits
Project Courses Master Research	• Project Courses related to the CI Program until AY 2018: • Academic Projects in which the leader is a faculty member of the CI Program (1) • Master Seminar in CI Program	At least 8 credits
Master Thesis	• 【-2017】: Master Thesis • 【2018-】: Master Thesis 1 (1), Master Thesis 2 (1)	2 credits (required)

Systems Biology Program (BI Program)

Details on the BI Program can be found at the following website:
http://www.sfc.keio.ac.jp/en/academics/graduate/program_m/bi.html

(1) Project Course Related to the Program

Advanced Biosciences A	Advanced Biosciences B
Multifaceted considerations of the meaning of “life”	

Project courses which were conducted in/before 2018 are not on the list. Students who have any question with the subjects should ask the Academic Affairs Office.

(2) Requirements for Acquiring a BI Program Certificate

Students who have fulfilled all requirements in the BI Program will be awarded a Certificate of Program Completion. The name of the program on the certificate will be “Systems Biology.”
Students must earn 30 credits or more including the credits earned from the following courses:

	Subject name	Minimum requirements
Program Courses Research Concept and Methodology Courses Special Courses	Advanced Molecular And Cellular Biology, Genome Engineering Laboratory, Bioinformatics Algorithms, Genome Design, Genomic Medicine, Mathematical Biology, Communicating Bioscience Using English, Biological Network, Metabolic Engineering Laboratory Practice Metabolome Analysis Laboratory Practice, Proteome Analysis Laboratory Practice, The Body Plan of Vertebrate, Conceptual Framework (BI), Advanced Research (BI)	At least 8 credits
Master Research Courses	Advanced Biosciences A (1), Advanced Biosciences B (1)	At least 4 credits
Master Research	Master Seminar in BI Program	At least 4 credits
Master Thesis	• 【-2017】: Master Thesis • 【2018-】: Master Thesis 1(1), Master Thesis 2(1)	2 credits (required)

Related Undergraduate Courses

Some students may be required to take the following undergraduate courses for supplemental study:

Molecular And Cellular Biology 1, 2, 3, and 4	Fundamental Biology Laboratory
Genetic Engineering Laboratory	Genetic Analysis Laboratory
Life Systems	

3. Professional Courses

Environmental Innovator Course (EI Course)

The Environmental Innovator Course aims to equip environmental leaders with business and public sense through practical research into relief- and counter-measures to climate change in developing countries in Asia and Africa through environmental and social businesses, and environmental policy and design. This course will be conducted in English to accommodate international students. There is also ample opportunity to study in Japanese.
Details on the Environmental Innovator Course can be found at the following website:
http://ei.sfc.keio.ac.jp/index.php?lang=en

(1) Project Courses Related to the Course

Academic Projects in which the leader or member is a faculty member of the EI Course

(2) Name of Faculty Members

The names in boldface are the committee members of the Graduate School of Media and Governance.

Course Chairperson: **YAN, Wanglin**

IKEDA, Yasushi / ICHINOSE, Tomohiro / OKI, Satoko / OMAE, Manabu / KANIE, Norichika / KIYOKI, Yasushi / KOBAYASHI, Hiroto / FURUTANI, Tomoyuki

- Participating Faculty members from other faculties or graduate schools:
  KATO, Makoto / THIESMEYER, Lynn / MATSUO, Naoki / YOSHITAKA, Mari

(3) Requirements for Acquiring a Certificate of the Environmental Innovator Course

Students who have fulfilled all requirements in the Environmental Innovator Course will be awarded a certificate. The name of the course on the certificate will be 'Environmental Innovator'.
Students must earn thirty-four credits including the credits earned from the following courses:

			Non-Thesis Trac
Foundation Courses	Practice In Environmental Monitoring, Practice for Local Community Creation, Environmental Technoscience and Policy, Environmental Information System Architecture	Must select*1	
	Conceptual Framework (EG1), Conceptual Framework (EG2), Conceptual Framework (Human Security)	Must select*1	At least 6 credits
	Advanced Research (EG1), Advanced Research (EG2), Advanced Research (Development and Social Theories), Advanced Research (Developing Regions of Asia)	Must select*1	
Common Courses	Fieldwork (Ecological and Environmental Fieldwork / Environmental Design Field Workshop / Fieldwork A, B, C or D) (2 credits each)	Must select*1	
	Internship: Internship A / B (2 credits each) or Special Seminar On Environmental Design 1 / 2 (4 credits each)	Must select*1	
	Project Courses (Students must take at least one credit every semester)	Required	At least 14 credits
	Master Seminar	Required each semester	
	Master's Project: Master Thesis 1 (1 credit), Master Thesis 2 (1 credit), or Non-Thesis Track.	Required	
Specialized Courses① (credits per course are indicated in brackets) *3	**Environmental Design Series:** Applied Environmental Design (Architecture And Landscape Design) (4 credits), Applied Environmental Design (Urban Environment Design) (4 credits), Applied Environmental Design (Green Architectural Design) (4 credits), Applied Environmental Design (Synthesis) (4 credits), Landscape Design, Urban Design Studies, History of City and Living Environment, Environmental Technology And Space Design, Building Technology, Architectural Environment Management, Safety in Environmental Design, Sustainable Architecture and Urban Design, Design Of Urban Space, Environmental Technoscience and Policy*2	Select At least 14 credits	

Specialized Courses② (credits per course are indicated in brackets) *3	**Environmental Planning and Policy Series:** Advanced Research (Development and Social Theories)*2, Digital Earth Science, Advanced Spatial Data Modeling, Space Law, Policy Management (Human Security and International Development)*2, Development and the Local Community, Biodiversity Science, Global Environmental Politics, Asia Pacific Initiative For Sustainable Development, Environmental Law and Economy, Environmental Resource Science of Earth, Urban Policy, Conceptual Framework (Human Security)*2, International Environmental Law, Spatial Analysis (4 credits)*4, Large-scale Environmental Systems, Environmental Information System Architecture*2	Select At least 14 credits
	Environmental Business Series: Designing Environmental Business, Exercise on Designing Low-Carbon Society 1 (4 credits), Exercise on Designing Low-Carbon Society 2 (4 credits), Design A Low-Carbon Society, Energy and Global Environment, Environmental Technology Systems, Theory of Global Environment Technology, Energy Policy Analysis, International Environmental Problems, Advanced Course of Environmental Chemistry, Atmospheric Environmental Science, Environmental Economic Policy, Global Environmental Policy Management	
	Social Entrepreneurialism Series: Advanced Research (Casebook Methods in Research and Education), Social Innovation through Social Entrepreneurship, Total Design of Private and Public Profits1/2, Social Finance, Product Development and Promotion of Social Business, Design for Social Innovation, Policy Management (Policy Making and Social Innovation), Management of Emerging Businesses, Management And Governance of Government Institutions, Strategic Management, Community Informatics, Family Business Management	

*1 "Must select" means that at least one subject must be taken from each course category.

*2 Conceptual Framework (Human Security), Advanced Research (Development and Social Theories), Environmental Technoscience and Policy, and Environmental Information System Architecture can be counted as either Foundation Course or Specialized Course. They cannot be double-counted.

*3 Fourteen credits from Specialized Courses can be earned from any series, such as Environmental Design Series, Environmental Planning and Policy Series, Environmental Business Series or Social Entrepreneurialism Series.

*4 "Spatial Analysis" is offered by Faculty of Policy and Management and Faculty of Environment and Information Studies.

Social Innovator Course (SI Course)

This course requires proficiency in Japanese in order to complete certificate requirements. Please refer to the Japanese guidebook for information on certificate requirements of the SI Course.

Innovative Future Strategist Course (Data science)

This course aims to develop professional strategists who can put the knowledge of technology and data science into action. As a key to the industrial and productivity revolution, there is an urgent need to produce individuals who can combine new technologies from fields such as IoT, data science, AI, robotics, drones, and sensors. The Innovative Future Strategist Course implements knowledge and technology in both physical space and cyberspace, and develops professionals who are capable of strategic business development and system design.

(1) Project Courses and Professional Courses Related to the Course

Cyber Informatics	Global Governance and Regional Strategy
Environmental Innovator Course	Environmental Design and Governance
Political Structure and Social Innovation	Social Innovator Course

(2) Name of Faculty Members

Course Chairperson: **FURUTANI, Tomoyuki**

AOYAMA, Atsushi / **AKIYAMA, Miki** / **OHGI, Yuji** / KATAOKA, Masaaki / **KATO Takaaki** / KAWAZOE, Takeshi / **KIYOKI, Yasushi** / **KUWAHARA, Takeo** / **NAKAMURO, Makiko**

(3) Certificate Requirements

From the below courses, students must earn four credits from Foundation Courses, eight from Common Courses, and eight from Specialized Courses for a total of 20 credits, to obtain a master's degree from the Faculty of Media and Governance.

	Course name		Minimum number of credits
Foundation Courses	**Statistics and Mathematics**[*1] Statistical Analysis, Bayesian Statistics, Mathematical Model Theory, Optimization Theory, Mathematical Analysis	Select	
	Basics in Information Society Advanced Spatial Data Modeling , Multimedia Knowledge Base Design and Implementation, Practice in Environmental Monitoring , Statistical Analysis of Risk, Mathematical Biology, Digital Earth Science	Must select	At least 4 credits
Common Courses	Open Data and Management Organization, Management Innovation in IT Business, Global Management of IT Business, Data Business Creation, Region Strategy Studies, Strategic Management, Governance Theory, Governance of Local Government, Management and Governance of Government Institutions, Policy Management	Must select	At least 8 credits
Specialized Courses	Global Econometrics, Finance Theory, Real Estate Markets Analysis, Applied Finance, Sociocontent Analysis, Introduction to Sociosemantics, Theory of Sports Skill Science, Advanced Statistical Analysis for Psychology, Bioinformatics Algorithms, Human Interface, Advanced Computer Architecture, Information Security -Theory and Practice- , Introduction to Time – series analysis, Population dynamics, Theory of Global Environment Technology, Statistical Analysis of Risk, Networks and Information Economy, Risk and Insurance	Must select	At least 8 credits

- Some of the courses listed are offered every other year.
- Courses that were held in the past are listed for those who have already taken them.

[*1] Undergraduate courses are not included in the requirements to complete the Master's Program (register for them as Optional Subjects). Those enrolling from outside SFC must earn at least two subjects from each Foundation Course category.

Cybersecurity Course

All kinds of functions are carried out and controlled through the internet and the myriad of computers and systems connected to it, bringing out society to a kind of cyber age in which information management is essential. Because of this, cyber space security is becoming increasingly important as our society develops. In addition to a practical understanding of information technology and networks, our society needs high level individuals with interdisciplinary expertise in areas such as law, society, management of organizations, and international relations. Furthermore, the ability to analyze cyber-attacks and system vulnerability, and a deep understanding of security to quickly prevent or solve accidents will be critical. This course trains students to become cyber security professionals with unmatched expertise to response to our society's needs.

(1) Project Courses Related to the Course

Internet Technology	Creation of Smart City
Internet Civilization	HCI Remixed
Novel Computing: AI and Brain Science	Security Studies 1
Software System	Security Studies 2

(2) Name of Faculty Members

Course Chairperson: **NAKAMURA, Osamu**

UEHARA, Keisuke / **KUSUMOTO, Hiroyuki** / **SHINJO, Atsushi** / **TAKASHIO, Kazunori** / **TAKEDA, Keiji** / **TAKEFUJI, Yoshiyasu / TEZUKA, Satoru /** TOKUDA, Hideyuki **/ NAKAZAWA, Jin** / **HAGINO, Tatsuya** / **HATTORI, Takashi** / **VAN METER, Rodney D.** / **MASUI, Toshiyuki** / **MITSUGI, Jin** / MURAI, Jun / **TSUCHIYA, Motohiro** / **SHIMPO, Fumio**

(3) Certificate Requirements

Students who fulfil the requirements will be awarded a certificate of program completion. The name on the certificate will appear as "Cybersecurity." As of Fall Semester in the 2017 Academic Year, please check the "Jukusei" student website for details on certificate requirements for this course. For other questions, ask the faculty member in charge of the course.

	Course name		Minimum number of credits
Foundation Courses	**Foundations of Cyber Security** Information Security – Theory and Practice – Law and Policy of Information Security Cyber Security Case Study	Required	6 credits
	Technology Basics in Cyber Security Software Security , Network Security , Cryptography and Data Security	Must select	4 credits
Specialized and Common Courses	Policy and Management in Cybersecurity International Cybersecurity Forensic Instant Response (AY 2020, tentative) Penetration Testing (AY 2020, tentative) Privacy and Personal Information Management Web Application Security (AY 2020, tentative) Information Risk Management	Must select	4 credits
Cybersecurity Practice	Courses related to Cybersecurity project preparation Internships related to Cybersecurity Other selected courses	Must select	4 credits

International Advanced Degrees Course (IADC)

In the International Advanced Degrees Course (IADC), English is the medium of instruction and also the language in which all assignments are to be submitted. Other than the fact that students in the Course take classes given in English, there is no distinction between non-Japanese and Japanese students. Students who complete the Course will receive the same Master's degree (Master of Media and Governance) as other students in the Graduate School of Media and Governance. Human Security and Communication (HC), Environmental Governance (EG), Cyber Informatics (CI), and Systems Biology (BI) constitute IADC.

(1) Project Courses Related to the Course

Please see lists of project courses related to HC, EG, CI and BI programs.

(2) Requirements for Acquiring a Certificate of IADC

Students who have fulfilled all requirements of the IADC certificate will be awarded a Certificate of Program Completion. The name of the program on the certificate will be “International Advanced Degrees Course.”

- must receive S or A grade for Master Thesis
- GPA 2.5 or above
- 12 credits or more from Project courses in the program that students belong to
- 2 credits or more from Conceptual Framework in the program that students belong to
- 2 credits or more from Advanced Research in the program that students belong to

Global Environmental System Leaders Course (GESL Course)

Global Environmental System Leaders Course (GESL) produces graduates who are able to discover and analyze global environmental changes and create global environmental systems in response to these changes by integrating the hardware technology that monitors and controls “the real environmental space”, which is the environment in the real world, and the technology that connects the “information environmental space”, which quantifies the causes and effects of environmental changes, together with the social rules. Each specialized area of environment, energy, ICT (Information and Communication Technology), policy, international relations, and social systems is integrated under a university-wide internationalized system. This system forms a basis for training creative future leaders who will take charge in the development of global environmental systems. This program’s curriculum is based on the “existing courses and areas of expertise” of the Graduate School of Media and Governance and “existing specialization” of the Graduate School of Science and technology. By leveraging the strengths of both graduate schools, we aim to foster global leaders in four fields.

(1) Name of Faculty Members

The names in boldface are those of the committee members of the Graduate School of Media and Governance.

Course Chairperson: **KIYOKI, Yasushi**

ICHINOSE, Tomohiro / **KANIE, Norichika** / **YAN, Wanglin** / **KOBAYASHI, Hiroto** / **TAKEFUJI, Yoshiyasu** / MURAI, Jun / URAKI, Asako / SASAKI, Shiori / MORITA, Kanako / HAYASHI, Yasuhiro

- Participating Faculty members from other faculties or graduate schools
  UEDA, Toshihisa / OKADA, Yusaku / OBI, Shinnosuke / KURITA, Osamu / SUZUKI, Tetsuya / HATAYAMA, Akiyoshi / HISHIDA, Koichi / FUKAGATA, Koji / YASUOKA, Kenji / DARKO, Radovic / WRESTI, Anggayasti / ASAI, Makoto
- Member of Partner institutions
  MASTORAKOS, Epaminondas / CHUNG K. Law / JAAKOLA, Hannu / WATANABE, Masataka

(2) Certificate Requirements

Students who have obtained a doctor's degree in the Media and Governance and have fulfilled all requirements of the Global Environmental System Leaders Course will be awarded a certificate. The name of the course on the certificate will be “Global Environmental System Leaders.” The diploma shows students’ specialization that acquired from the “Global Environmental System Leaders program.”

A GESL Certificate along with a doctor’s degree will be conferred on students who satisfy with the completion requirements given below (1–5), and who pass the final review process:
(Students MUST read the GESL Guideline Book carefully. The formal definitions of the following requirements are defined in the GESL Guideline Book.)

- Four or more credits in total must be earned by selecting one course from each pair listed below including credits students earned in their master program study:
  - ENVIRONMENTAL INFORMATION SYSTEM ARCHITECTURE or LARGE-SCALE ENVIRONMENTAL SYSTEMS
  - ENVIRONMENTAL TECHNOSCIENCE AND POLICY or GLOBAL ENVIRONMENTAL POLICY MANAGEMENT
- Students must receive a passing grade for their minor research presentation. Students must submit a report on their minor research and give a presentation to four or more graduate committee members as referees whose research areas are related to student’s minor research area after fulfilling the academic requirements set above in section 1.
- As an International Training Course, students are required to conduct an international fieldwork or complete an internship oversea. The duration of this fieldwork or internship should be six or more months in principle. Students must give a presentation about their fieldwork or internship as their International Training Presentation at the GESL Joint Graduate Research Seminar and receive a passing grade on the presentation. In order to fulfill this international training requirement, a total of eight credits or more must be earned from Fieldwork A・B・C・D (two credits each) and/or Internship A・B (two credits each) and/or Advanced Field Work A (eight credits)・B (four credits)・C (four credits)・D (six credits) including credits students earned in their master program study.
- Students must give two or more presentations in English at international conferences.
- Students must satisfy English proficiency requirements: a score of 213 or higher on the Computer-Based TOEFL exam (550 or higher on the Paper-Based TOEFL; 79–80 or higher on the Internet-Based TOEFL), a score of 730 or higher on the TOEIC exam, or pass pre-Level 1 or higher of the STEP EIKEN exam.