

Regulations for the Implementation of the Curriculum
Department of Climate-Social Science Convergence`, Graduate School

Effective Date: March 1, 2025

Article 1 (Purpose)

- ① These regulations aim to prescribe the detailed requirements for obtaining a degree in the above-mentioned graduate department.
- ② Any person seeking to obtain a degree must fulfill all requirements stipulated in the Graduate School Regulations, the Enforcement Regulations of the Graduate School Regulations, the Graduate School Internal Regulations, and these Implementation Regulations.

Article 2 (Educational Objectives)

- ① The educational objectives of the department are as follows:
 1. To cultivate creative and convergent talents who can contribute to policy formulation for climate change mitigation and adaptation in the era of climate crisis.
 2. To enhance graduate students' research capabilities and academic competence.

Article 3 (Career and Employment Fields)

- ① The career and employment fields of the department are as follows:
 1. Related industries, government-funded research institutes, researchers at public corporations such as LX and LH, etc.
 2. Admission to domestic and international doctoral programs and postdoctoral programs.

Article 4 (Basic Structure of the Curriculum)

- ① A person who wishes to graduate (complete the program) in the Department of Climate and Society Convergence Science must complete the required major courses and elective major credits specified in Table 1 (Basic Curriculum Structure) and Appendix Table 1 (Curriculum Organization Table).
- ② Graduate-level courses offered by other departments that are not included in Appendix Table 1 shall be recognized as major electives within the limit of credits for courses from other departments specified in Table 1.

Table 1. Basic Structure of the Curriculum

Department (Major)	Program	Major Required	Major Elective	Common Courses	Total Credits	Credits Recognized from Other Departments
Department of Climate-Social Science Convergence	Master's	3 credits	21 credits	-	24 credits	9 credits
	Doctoral	3 credits	33 credits	-	36 credits	12 credits
	Integrated Master's–Doctoral	3 credits	57 credits	-	60 credits	12 credits

Article 5 (Curriculum)

① The curriculum is as follows:

1. The curriculum organization table is as shown in Appendix Table 1.
2. The course descriptions are as shown in Appendix Table 2.

Article 6 (Prerequisite Courses)

① The following persons must complete prerequisite courses as specified below:

1. Eligible Person: A person admitted to a department (major) different from that of their previous degree program.
2. Required prerequisite credits:
 - Master's program: 9 credits
 - Doctoral and Integrated Master's–Doctoral programs: 12 credits

② Among the courses completed in the previous degree program prior to admission, those for which credit recognition is applied and approved by the academic advisor, the department chair, and the head of the relevant administrative unit may be recognized as prerequisite credits.

Article 7 (Recognition of Courses from Other Departments)

① With the approval of the academic advisor and the department chair, students may take major courses offered by other departments within the Graduate School, and such courses may be recognized as major electives within the limit specified in Table 1.

② If the recognized credits exceed the limit for courses from other departments, they may be recognized within the scope of major electives upon deliberation by the department meeting.

Article 8 (Graduate School Common Courses)

If a student takes “common courses” (convergence education courses) offered for all graduate students, such courses may be recognized as major electives upon approval by the academic advisor and the department chair.

Article 9 (Completion of Program)

- ① Completion shall be granted only to those who complete the curriculum specified in Article 4 and fulfill all requirements stipulated in the Graduate School Regulations and other higher-level regulations.
- ② Students required to complete prerequisite credits must acquire the prescribed prerequisite credits. However, prerequisite credits shall not be included in the credits required for completion.
- ③ Only the credits recognized as courses from other departments and common courses within the limits prescribed in the above Articles shall be counted toward the completion credits.

Article 10 (Graduation)

Graduation shall be granted only to those who fulfill all requirements under Article 9, as well as the degree qualification examination, the degree thesis, publication requirements, and other graduation requirements.

Article 11 (Degree Qualification Examination)

- ① To apply for submission of a degree thesis, a student must pass the degree qualification examination.
- ② The degree qualification examination consists of:
 - Degree Qualification Examination (Public Presentation)
 - Degree Qualification Examination (Comprehensive Examination)
- ③ The Degree Qualification Examination (Public Presentation) evaluates the preliminary thesis proposal.
 - It may be taken in the semester in which the degree thesis is to be submitted.
 - The public presentation shall be open to all attendees.
 - At least three full-time faculty members of the department, including the academic advisor, must attend the presentation.
 - Attending faculty members or audience members may ask questions related to the thesis, and the presenter must respond to such questions.
- ④ The Degree Qualification Examination (Comprehensive Examination) shall consist of written and oral examinations in the major field.

- ⑤ The Degree Qualification Examination shall be evaluated as Pass (P) or Fail (N).

Article 12 (Publication Requirement)

- ① To obtain a degree, students must submit proof of academic publication performance separately from the degree thesis.
- ② The publication requirements shall follow the Graduate School Internal Regulations.

Supplementary Provisions

- ① Effective Date: March 1, 2025
- ② Transitional Measures: Transfer students may apply the previous curriculum implementation regulations prior to transfer upon deliberation by the department meeting and approval by the department chair.

Appendix Table 1. Curriculum Organization Table

No.	Category	Course Code	Course Title	Credits	Master's	Doctoral	1st Semester	2nd Semester	Remarks
1	Major Required	CSSC7001	Climate Literacy and Urban Data	3	0	0	0	0	New Course
2	Major Elective	CSSC7002	Geographic Perspective	3	0	0	0	0	New Course
3	Major Elective	CSSC7003	Climate Change and Map Communication	3	0	0	0	0	New Course
4	Major Elective	CSSC7004	Climate Science	3	0	0	0	0	New Course
5	Major Elective	CSSC7005	Climate and Infectious Disease	3	0	0	0	0	New Course
6	Major Elective	CSSC7006	Utilization of Disaster Data	3	0	0	0	0	New Course
7	Major Elective	CSSC7007	Climate Change Analysis	3	0	0	0	0	New Course
8	Major Elective	CSSC7008	Open Source and Disaster Information Analysis	3	0	0	0	0	New Course
9	Major Elective	CSSC7009	Climate Change and Simulation Modeling	3	0	0	0	0	New Course
10	Major Elective	CSSC7010	Urban Data Analysis Methodology	3	0	0	0	0	New Course
11	Major Elective	CSSC7011	The Politics of Climate Change	3	0	0	0	0	New Course
12	Major Elective	CSSC7012	Policy Instruments Theory	3	0	0	0	0	New Course
13	Major Elective	CSSC7013	Political Ecology	3	0	0	0	0	New Course
14	Major Elective	CSSC7014	Energy Transition and Society	3	0	0	0	0	New Course
15	Major Elective	CSSC7015	Pandemics, Disasters, and Politics	3	0	0	0	0	New Course

No.	Category	Course Code	Course Title	Credits	Master's	Doctoral	1st Semester	2nd Semester	Remarks
16	Major Elective	CSSC7016	Public Sector Performance Management Theory	3	0	0	0	0	New Course
17	Major Elective	CSSC7017	The Sociology of Sense and Matter	3	0	0	0	0	New Course
18	Major Elective	CSSC7018	Local-Based Climate Change and Adaptation Methodology	3	0	0	0	0	New Course
19	Major Elective	GEOG7093	Sustainable Urban Development	3	0	0	0	0	Code Share (Dept. of Geography)
20	Major Elective	CSSC7019	Environmental Communication	3	0	0	0	0	New Course
21	Major Elective	CSSC7020	Political Sociology of Policy	3	0	0	0	0	New Course
22	Major Elective	CSSC7021	Digital Twins and Climate Change	3	0	0	0	0	New Course
23	Major Elective	CSSC7022	Climate Change and Community-Based Action Research	3	0	0	0	0	New Course
24	Major Elective	CSSC7023	Climate Data and GeoAI	3	0	0	0	0	New Course
25	Major Elective	CSSC7024	Climate/Disaster Information Network Analysis	3	0	0	0		

Appendix Table 2. Course Descriptions

CSSC7001 Climate Literacy and Urban Data

Emphasis is placed on cultivating computational thinking to effectively analyze the impact of climate change on cities. Students utilize programming languages (e.g., Python) to analyze climate change-related phenomena within cities (urban heat islands, air quality changes, energy consumption) using real data and create visualization tools. Through this, they learn data-driven approaches to support urban design and policy decisions in response to climate change.

CSSC7002 Geographic Perspective

This course provides geographic thinking and approaches to understanding the climate change crisis. Students identify the causes and impacts of climate change through geographic analysis and acquire foundational knowledge for problem-solving. The course focuses on analyzing climate change issues from a geographic perspective and developing response strategies.

CSSC7003 Climate Change and Map Communication

This course investigates methodological processes of using maps as tools for communication to understand the multidimensional and complex nature of climate change. Spatial patterns and interactions of climate change are analyzed in the context of cartometrics, allowing students to acquire map analysis techniques that effectively convey the complexity of climate change.

CSSC7004 Climate Science

Students understand the physical and dynamic characteristics of climate and learn about the interactions between climate factors and the atmosphere and geosphere. The course provides an in-depth academic exploration of the complex workings of climate.

CSSC7005 Climate and Infectious Disease

The impact of climate change on the spatial spread of infectious diseases is analyzed. The relationship between mosquito-borne diseases and climate change is explored, along with changes in outbreak locations and response strategies.

CSSC7006 Utilization of Disaster Data

Methods for examining and constructing spatial and non-spatial data to analyze disasters

caused by climate change are learned. Various data, including meteorological climate data and national disaster management data, are addressed, and methods for utilizing open-source databases are mastered.

CSSC7007 Climate Change Analysis

Techniques for analyzing climate data using global spatiotemporal grid data are taught. Correlation analysis, composite deviation analysis, and linear regression analysis are used to understand and analyze the patterns and impacts of climate change.

CSSC7008 Open Source and Disaster Information Analysis

Tools for analyzing the occurrence and impact of disasters caused by climate change are learned. Python is used to develop analysis tools, and open sources are utilized to learn the basics and application methods of disaster information analysis.

CSSC7009 Climate Change and Simulation Modeling

Methods for understanding and predicting social phenomena caused by climate change (e.g., animal migration, infectious disease spread) are taught. Through spatial simulation modeling techniques, students develop the capability to analyze the occurrence and impact of these phenomena.

CSSC7010 Urban Data Analysis Methodology

Students learn how to collect and analyze urban data and interpret results. Various urban-related data such as population, traffic, and environment are refined and analyzed, and project execution skills are developed using spatial statistics and machine learning.

CSSC7011 The Politics of Climate Change

The challenges and conflicts faced by countries in achieving carbon neutrality goals are analyzed. Through various cases, the causes and solutions for conflicts among countries, industries, and social classes are examined.

CSSC7012 Policy Instruments Theory

Various instruments used in government policy implementation are studied. Regulatory, incentive, and persuasive policy tools are examined, focusing on designing effective combinations of policy tools to respond to the climate crisis.

CSSC7013 Political Ecology

Environmental issues are approached from natural scientific, sociocultural, and policy

perspectives in an integrated manner. Environmental issues are analyzed from a spatial perspective.

CSSC7014 Energy Transition and Society

The connection between energy transition and sociopolitical issues is analyzed. Social and economic changes resulting from policies such as RE100 are examined.

CSSC7015 Pandemics, Disasters, and Politics

The role and response of governments during global disasters are analyzed. Issues such as vaccine mandates and the legitimacy of government policies are examined.

CSSC7016 Public Sector Performance Management Theory

Methods for evaluating the performance of government policies and programs are studied. Topics include performance indicators, performance management systems, and performance measurement and compensation.

CSSC7017 The Sociology of Sense and Matter

New concepts are explored by connecting social sciences with sensory studies and material culture studies. Cases of renewable energy and infectious disease conflicts are applied to moral, sensory power, and material politics.

CSSC7018 Local-Based Climate Change and Adaptation Methodology

Local impacts and response methods to climate change are identified through domestic and international cases. Through document analysis and field research, interactions between climate change and human geography phenomena are examined.

GEOG7093 Sustainable Urban Development

The necessity of sustainable urban development reflecting the impacts of climate change is explored. Strategies for city design such as eco-friendly infrastructure and energy efficiency are studied.

CSSC7019 Environmental Communication

The origins of environmental communication and the role of media are explored. Public perception of climate change and environmental campaigns are analyzed.

CSSC7020 Political Sociology of Policy

Four sociological approaches to analyzing policies are studied. Environmental and risk

policy cases are analyzed using stakeholder, institutional, interpretive, and material approaches.

CSSC7021 Digital Twins and Climate Change

Methods for visualizing and simulating climate change through digital twins are studied. Students learn how to acquire and process ultra-high-resolution spatial data.

CSSC7022 Climate Change and Community-Based Action Research

The impact of climate change on communities is examined, and response strategies are explored through field research and communication with local members.

CSSC7023 Climate Data and GeoAI

Methods of analyzing climate and meteorological data using geographic artificial intelligence are explained. Students develop prediction and policy formulation capabilities.

CSSC7024 Climate/Disaster Information Network Analysis

The flow of information in the era of extreme weather events and complex disasters is analyzed. Communication structures and misinformation issues are examined through digital unstructured data and network analysis.