

OFFICIAL TRANSLATION OF

**Neufassung der Fachspezifischen Bestimmungen für den
Masterstudiengang Integrated Climate System Sciences
vom 26. Januar 2011 und 5. Oktober 2011
(Amtliche Bekanntmachung Nr. 50 vom 19. Dezember 2011)**

**THIS TRANSLATION IS FOR INFORMATION ONLY – ONLY THE
GERMAN VERSION SHALL BE LEGALLY VALID AND
ENFORCEABLE!**

**Revised Subject-Specific Provisions for the Master of Science
in Integrated Climate System Sciences**

dated 26 January 2011 and 5 October 2011

On 24 October 2011 in accordance with Section 108 subsection 1 of the Hamburg higher education act (Hamburgisches Hochschulgesetz, HmbHG) the Executive University Board of Universität Hamburg ratified the subject-specific provisions that were adopted by the faculty council from the Faculty of Mathematics, Informatics and Natural Sciences on 26 January 2011 and 5 October 2011 in accordance with Section 91 subsection 2 no. 1 HmbHG dated 18 July 2001 (HmbGVBl. p. 171) as amended on 16 November 2010 (HmbGVBl. p. 605) for the master's degree program in integrated climate system sciences as a subject of a degree program with the designation Master of Science (MSc).

Preamble

These Subject-Specific Provisions supplement the provisions of the Faculty of Mathematics, Informatics and Natural Sciences' Examination Regulations dated 26 October 2005 as amended governing Master of Science (MSc) degree programs and provide a description of the modules for the degree program Integrated Climate System Sciences.

I. Supplemental provisions

Section 1

Program and examination objectives, academic degree, and implementation of the degree program

Section 1 subsection 1:

(1) The Master of Science in Integrated Climate System Sciences (MSc in ICSS) is a consecutive, interdisciplinary, research-based degree program specializing in physics of the climate system, biogeochemistry of the climate system, and climate-related economics and social sciences.

(2) The MSc in ICSS follows the general program goals set out in Section 1 subsection 1 of the MIN Faculty's Examination Regulations governing Master of Science degree programs (PO MSc). In addition to these general program goals, the Integrated Climate System Sciences program aims to provide students with in-depth master's-level knowledge in the fields of meteorology, oceanography, geophysics, and other geosciences as well as economics and social sciences with respect to the climate system. Graduates will be specifically prepared for climate-related research and climate-related professional fields.

(3) The following skills will be taught: (a) Independent application and expansion of scientific knowledge, methods, and skills with respect to the climate system, (b) climate-system-related education and training, and (c) the implementation of climate-system-related knowledge for responsible actions based on good scientific practice.

(4) The degree program prepares students for research activities in the field of integrated climate systems and is geared to the specialization needs of research, business, and administration. In order to enhance specialization of the subject and to expand upon knowledge from lectures and practical courses, starting in the third semester students will be assigned to working or research groups for group-oriented and research-based learning so as to prepare them for their research work. Students

will have six months in which to complete their master's thesis, addressing a complex issue from fundamental climate-related research or applied climate system analysis.

Section 1 subsection 3:

These Subject-Specific Provisions shall apply accordingly to students who are completing their third semester of the Master of Science in Applied Polar and Marine Sciences (POMOR) at Universität Hamburg and cooperating German higher education institutions. The module descriptions for the eligible modules of the first and third semesters of the MSc in ICSS govern this in more detail. Universität Hamburg shall award the academic degree, Master of Science (MSc), in accordance with sentence 1 herein to students who have completed master's level coursework and examinations in Russia and Germany for the Master of Science in Applied Polar and Marine Sciences (POMOR).

Section 1 subsection 4:

The School of Integrated Climate System Sciences (SICSS) shall be responsible for implementing the degree program for the Faculty of Mathematics, Informatics and Natural Sciences and will be augmented by the Faculty of Business, Economics and Social Sciences.

Section 4

Program and exam organization, modules, and ECTS credits

Section 4 subsections 2 and 3:

(1) The MSc in ICSS includes a specialization in physics of the climate system, biogeochemistry of the climate system, or climate-related economics and social sciences, thus allowing students to choose from three specializations. The degree program is an interdisciplinary degree program which requires students to earn 120 ECTS credits and integrates interdisciplinary required modules totaling 36 ECTS credits, required elective modules from a specialization totaling 48 ECTS credits, a master's thesis worth 30 ECTS credits, and elective modules for the acquisition of key skills totaling 6 ECTS credits.

(2) The modules can be assigned to the four categories below with respect to content. The fundamental components and processes of climate systems are taught (30 ECTS credits) subsequent to an orientation unit (3 ECTS credits). Commencing in the first semester, students will be given the possibility of an initial orientation with respect to their specialization that involves taking supplemental module and course offerings. In the second and third semesters, an increasing degree of specialization will take place in one of the following three areas: (a) physics of the climate system, (b) biogeochemistry of the climate system, or (c) climate-related economics and

social sciences. The modules in the second and third semesters include skills for (i) observation, (ii) analysis, (iii) modeling, and (iv) application (48 ECTS credits).

(3) Courses for key skills are integrated in the second and third semesters (6 + 3 ECTS credits). The master's thesis will be written in the fourth semester in one of the three specializations (30 ECTS credits).

(4) Detailed descriptions of all modules can be found in part II of these Subject-Specific Provisions. The module descriptions are listed in a synoptic table containing the names of the individual modules, their classifications (e.g., required module), the type of courses (e.g., lecture,) and the workload expected for courses expressed as ECTS credits.

(5) In deviation from subsections 1 through 3 herein and in coordination with doctoral procedure supervisors, a binding individual study plan, which defines the modules that must be taken including their descriptions, shall be created for students who have been admitted to a doctoral procedure (i.e., fast-track doctoral degree program) pursuant to Section 3 subsection 3 of the Doctoral Degree Regulations for the Faculty of Mathematics, Informatics and Natural Sciences dated 6 April 2011, as amended. This study plan must warrant the achievement of the objectives for the master's degree program set forth in Section 1—the plan may also contain modules that are not set out in part II "Overview of modules and recommended module plan." The study plan must be approved by the examinations board.

(6) Moreover, students may voluntarily complete modules in excess of the 120 ECTS credits. Upon submission of a request to the examinations board, the additional examination grades may be reflected in the academic transcript for the master's degree program. They will, however, not be used to calculate the overall final grade.

(7) The MSc in ICSS program shall offer climate-related modules and courses as a supplementary subject. The examination regulations applicable to the student's main subject will provide more information about the scope of the supplementary subject. The examinations board shall establish which courses will satisfy the substantive requirements prescribed within the framework of the main subject after the student has consulted with the subject advisor for the subject of Integrated Climate Sciences.

(8) Students pursuing a supplementary subject shall enroll in courses or entire modules in order to acquire knowledge from subareas of the MSc in ICSS. The module descriptions of these Subject-Specific Provisions shall set forth under the

heading “Applicability of the module” whether the respective module is suitable for a supplementary subject.

Section 4 subsection 5:

Upon adherence to the following policies for program planning, the degree program can be completed on a part-time basis. For this, the following provisions must be observed:

(1) Part-time students must inform the examinations office without delay of any changes to their student status (written confirmation from Services for Students is required). The examinations office will note the change of status in the file.

(2) During part-time study, the modules and credits (30 ECTS credits) designated in the Subject-Specific Provisions that are normally completed over the course of a subject semester during full-time study must be completed within two university semesters. Modules must generally be completed in the sequence set forth for full-time study.

(3) Courses offered only once a year should be completed at the earliest opportunity.

(4) In particularly justified cases of hardship or atypical progression of studies, part-time students may conclude a binding agreement with the respective subject advisors upon the assent of the examinations board for an individualized progression of study.

Section 5
Course types

Section 5 sentence 2:

All course types pursuant to Section 5 of the Examination Regulations for Master of Science degree programs may be implemented.

Section 5 sentence 3:

As a rule, courses are taught in English. Deviations shall be announced in the respective module description and at the beginning of the course.

Section 6
Limiting attendance for
specific courses

As a result of limited capacities, the number of students who may register for modules or individual courses is limited. At the time of admission, the examinations board shall take these limitations into consideration. The examinations board shall disclose the criteria for the selection of participants.

Section 13
Completed coursework and
module examinations

Section 13 subsection 4:

The following type of examination may be additionally used for module and course examinations: reports. This type of examination involves a synoptic treatment of a topic that was addressed as part of the respective module.

Section 13 subsection 5:

Examinations shall be held in English. As a rule, an examination shall be held in the language in which the course was conducted. If the examiner and the student agree, the examination may also be taken in a language that is different from the language of the module.

Section 14
Master's thesis

Section 14 subsection 1:

A component part of the master's thesis is a presentation within the framework of an academic seminar. The presentation shall comprise 1/5 of the grade for the master's thesis. The presentation must be given no later than six weeks after submission of the thesis.

Section 14 subsection 2:

Students who have earned at least 60 ECTS credits in total may be allowed to commence work on the master's thesis.

Section 14 subsection 6:

The master's thesis must be written in English.

Section 14 subsection 7 sentence 2:

The workload for the master's thesis amounts to 30 ECTS credits, and it must be completed within no more than 6 months.

Section 15
Evaluation of examinations

Section 15 subsection 3 sentence 5:

If a module examination is comprised of several course examinations, then the (overall) grade shall be calculated by averaging the grades from each course examination weighted according to the ECTS credits assigned to each part.

Section 15 subsection 3 sentence 9:

The overall final grade for the master's degree program shall be calculated by averaging the grades from all modules weighted according to the ECTS credits assigned to each, whereby the master's thesis shall have twice the weight.

Section 15 subsection 3 sentence 10:

Grades from the Soft Skills 1 and Soft Skills 2 modules shall not be used to calculate the overall final grade.

Section 15 subsection 4:

The overall final grade "pass with distinction" shall be awarded if a grade of 1.0 is earned for the master's thesis, the average overall grade is less than or equal to 1.3, and none of the module examinations were passed with grades worse than 2.3.

II. Overview of modules and recommended module plan for the MSc in Integrated Climate System Sciences

The following table contains an overview of modules and a structural outline, however, no overview of the specializations physics of the climate system, biogeochemistry of the climate system, and climate-related economics and social sciences.

The abbreviations denote: CP = ECTS credits, Cr. hrs. = credit hours per week, Req. = required, RE = required elective, L = lecture, PC = practical course, S = seminar, FT = field trip

Module No.	Semester, Module Type, and Methods of Instruction	Workload	Cr. Hrs.	CP
1st semester (winter semester)				
1.1	Introduction to Integrated Climate System Sciences including Orientation Unit, Req.; L, S, FT	90	2	3
1.2	Climate System 1, Req.; L	360	8	12
1.3	Climate Processes, Req.; L	270	6	9
1.4	Climate System Additional, RE; L, S, PC	180	4	6
	Total	900	20	30
2nd semester (summer semester)				
2.1	Climate System 2, Req.; L, S	270	6	9
2.2	Climate System Specialization 1, RE; L, S, PC	360	8	12
2.3	Climate System Observations, RE; L, PC, FT	180	4	6
2.4	Soft Skills 1, RE; L, S	90	2	3
	Total	900	20	30
3rd semester (winter semester)				
3.1	Seminar on Integrated Climate System Sciences, Req.; S	90	2	3
3.2	Climate System Sciences Lab, RE; L, S, PC, FT	450	10	15
3.3	Climate System Specialization 2, RE; L, S, PC	270	6	9
3.4	Soft Skills 2, RE; S	90	2	3
	Total	900	20	30

4th semester (summer semester)				
4.0	Master's thesis for Climate System Sciences with examination, Req.	900	20	30
	Total	900	20	30
	Total for the MSc in ICSS	3600	80	120

Structure of the degree program for an MSc in Integrated Climate System Sciences with three specializations; 1 credit hour per week corresponds to 1.5 ECTS credits (CP)				
Master of Science in Integrated Climate System Sciences (MSc in ICSS) Specialization tracks: physics of the climate system (ICSS-P) biogeochemistry of the climate system (ICSS-B) economics and social sciences (ICSS-ES)				
Term 1 (winter semester)	1.1 Introduction CP 3	1.2 Climate System 1 CP 12	1.3 Climate Processes CP 9	1.4 Climate System Additional CP 6
Term 2 (summer semester)	2.1 Climate System 2 CP 9	2.2 Climate System Specialization 1 CP 12	2.3 Climate System Observations CP 6	2.4 Soft Skills 1 CP 3
Term 3 (winter semester)	3.1 Seminar CP 3	3.2 Climate System Science Lab CP 15	3.3 Climate System Specialization 2 CP 9	3.4 Soft Skills 2 CP 3
Term 4 (summer semester)	4.0 MSc thesis for Climate System Sciences with examination CP 30			

III. Brief description of modules for the MSc in Integrated Climate System

Sciences

The module numbers correspond to the consecutive numbers down the left side of the module plan table for the MSc in Integrated Climate System Sciences.

The abbreviations denote: CP = ECTS credits, Cr. hrs. = credit hours per week required, L = lecture, PC = practical course, S = seminar, FT = field trip

Semester 1

Module 1.1 Introduction to Integrated Climate System Sciences including Orientation Unit

Module code	CLINTRO	
Title	Introduction to Integrated Climate System Sciences including Orientation Unit	
Intended learning objectives	Students will have obtained an initial overview of approaches and knowledge of the key disciplines of climate system sciences in research and for non-university professions.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	Report
	Examination registration prerequisites	None
	Language of instruction	English
	Duration/length	3 to 5 pages (1000 to 1500 words)
	As appropriate, course grades will be weighted for the calculation of the module grade	
ECTS credits	3.0	
Module type	Required module	
Recommended semester for module	1st semester	
Module frequency	Once each winter semester	
Duration	One-week block course before the first week of the lecture period	

Module 1.2 Climate System 1

Module code	CLISYS 1	
Title	Climate System 1	
Intended learning objectives	Students will have gained knowledge of the principles and integrated perspectives of the climate system components and their resonance to natural and anthropogenic disturbances.	
Formal prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	The specific type of examination will be announced during registration or at the beginning of the course.
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	Each examination no more than 45 min. in duration
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade of up to a maximum of 4 course examinations
ECTS credits	12.0	
Module type	Required module	
Recommended semester for module	1st semester	
Module frequency	Once each winter semester	
Duration	1 semester	

Module 1.3 Climate Processes

Module code	CLIPROC	
Title	Climate Processes	
Intended learning objectives	Students will have gained knowledge of the core processes of the climate system, including energy, element, and water budgets as well as develop an understanding of climate system processes on different time and space scales and for current global and anthropogenic influences.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	The specific type of examination will be announced during registration or at the beginning of the course.
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	Each examination no more than 90 min. in duration
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade of up to a maximum of 3 course examinations
ECTS credits	9.0	
Module type	Required module	
Recommended semester for module	1st semester	
Module frequency	Once each winter semester	
Duration	1 semester	

Module 1.4 Climate System Additional

Module code	CLIAD	
Title	Climate System Additional	
Intended learning objectives	Students will have acquired the scientific basis and understanding of the primary research fields for a holistic view of earth and climate systems.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	The specific type of examination will be announced during registration or at the beginning of the course.
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	Course specific
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade from 2 to up to a maximum of 4 course examinations
ECTS credits	6.0	
Module type	Required elective module	
Recommended semester for module	-	
Module frequency	Once each winter semester	
Duration	1 semester	

Semester 2

Module 2.1 Climate System 2

Module code	CLISYS2	
Title	Climate System 2	
Intended learning objectives	Students will have acquired skills on the dynamics of the climate system and the appropriate working methods from the disciplines involved.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	The specific type of examination will be announced during registration or at the beginning of the course.
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	Each examination no more than 45 min. in duration
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade of up to a maximum of 3 course examinations
ECTS credits	9.0	
Module type	Required module	
Recommended semester for module	2nd semester	
Module frequency	Once each summer semester	
Duration	1 semester	

Module 2.2 Climate System Specialization 1

Module code	CLISPEC	
Title	Climate System Specialization	
Intended learning objectives	Students will have gained the ability to apply theoretical and methodological knowledge in field and laboratory work, and have continued to develop their specialization.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	The specific type of examination will be announced during registration or at the beginning of the course.
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	Course specific
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade of up to a maximum of 4 course examinations
ECTS credits	12.0	
Module type	Required elective module	
Recommended semester for module	-	
Module frequency	Once each summer semester	
Duration	1 semester	

Module 2.3 Climate System Observations

Module code	CLIOBS	
Title	Climate System Observations	
Intended learning objectives	Students will be able to apply theoretical and methodological knowledge in field and laboratory work.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	The specific type of examination will be announced during registration or at the beginning of the course.
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	Course specific
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade of up to a maximum of 2 course examinations
ECTS credits	6.0	
Module type	Required elective module	
Recommended semester for module	-	
Module frequency	Once each summer semester	
Duration	1 semester	

Module 2.4 Soft Skills 1

Module code	CLISOFT1	
Title	Soft Skills 1	
Intended learning objectives	Students will have individually refined their skills for a scientific or professional career.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	Practical exam
	Examination registration prerequisites	Active participation
	Language of instruction	
	Duration/length	
	As appropriate, course grades will be weighted for the calculation of the module grade	
ECTS credits	3.0	
Module type	Required elective module	
Recommended semester for module	-	
Module frequency	Once each summer semester	
Duration	1 semester or block course	

Semester 3

Module 3.1 Seminar on Integrated Climate System Sciences

Module code	CLISEM	
Title	Seminar on Integrated Climate System Sciences	
Intended learning objectives	Students will have defined the objective of the master's thesis, as well as presented and discussed the conceptual framework, including time management.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	Presentation and report
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	10- to 20-minute presentation, report of 3 to 5 pages (1000 to 1500 words)
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade from 2 course examinations
ECTS credits	3.0	
Module type	Required module	
Recommended semester for module	3rd semester	
Module frequency	Every semester	
Duration	1 semester	

Module 3.2 Climate System Sciences Lab

Module code	CLILAB	
Title	Climate System Sciences Lab	
Intended learning objectives	Students will have learned autonomous experimentation and modeling skills for application in processes in the natural and social sciences as well as economic processes.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	The specific type of examination will be announced during registration or at the beginning of the course.
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	Course specific
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade from 3 to up to a maximum of 5 course examinations
ECTS credits	15.0	
Module type	Required elective module	
Recommended semester for module	-	
Module frequency	Once each winter semester	
Duration	1 semester or block course	

Module 3.3 Climate System Specialization 2

Module code	CLISPEC2	
Title	Climate System Specialization 2	
Intended learning objectives	Students will have advanced their abilities to apply theoretical and methodological knowledge in field and laboratory work. In addition, students will have achieved a broader overview of economic, social, and environmental issues that are relevant to understanding the climate system.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	The specific type of examination will be announced during registration or at the beginning of the course.
	Examination registration prerequisites	Active participation
	Language of instruction	English
	Duration/length	Course specific
	As appropriate, course grades will be weighted for the calculation of the module grade	Average grade from 2 to up to a maximum of 3 course examinations
ECTS credits	9.0	
Module type	Required elective module	
Recommended semester for module	-	
Module frequency	Once each winter semester	
Duration	1 semester or block course	

Module 3.4 Soft Skills 2

Module code	CLISOFT 2	
Title	Soft Skills 2	
Intended learning objectives	Students will have individually refined their skills for a scientific or other professional career.	
Formal module prerequisites for attendance	None	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	Practical exam
	Examination registration prerequisites	Active participation
	Language of instruction	
	Duration/length	
	As appropriate, course grades will be weighted for the calculation of the module grade	
ECTS credits	3.0	
Module type	Required elective module	
Recommended semester for module	-	
Module frequency	Once each winter semester	
Duration	1 semester or block course	

Semester 4

Module 4.0 MSc Thesis

Module code	CLIEX	
Title	MSc thesis for Climate System Sciences	
Intended learning objectives	Students will be in the position to independently prepare an innovative master's thesis in a specific field of climate sciences and present it to a knowledgeable audience in an easily comprehensible manner.	
Formal module prerequisites for attendance	Completion of 60 ECTS credits for MSc in ICSS	
Module examination guidelines (incl. course examinations, as appropriate)	Examination type	Master's thesis and oral presentation
	Examination registration prerequisites	None
	Language of instruction	English
	Duration/length	20- to 30-minute presentation
	As appropriate, course grades will be weighted for the calculation of the module grade	80% master's thesis and 20% oral examination with discussion
ECTS credits	30.0	
Module type	Required module	
Recommended semester for module	4th semester of MSc in ICSS	
Module frequency	Annually	
Duration	1 semester	

Section 23 Effective date

These Subject-Specific Provisions shall become effective on the day after they are ratified by the Executive University Board of the University. They shall first apply to students commencing their studies in the 2011/12 winter semester.

Hamburg, 24 October 2011
Universität Hamburg