

OFFICIAL TRANSLATION OF Fachspezifische Bestimmungen für den Studiengang Geophysics (M.Sc.)

(Amtliche Bekanntmachung Nr. 60 vom 13. August 2024)

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

Specific Provisions for the Master of Science (M.Sc.) in Geophysics

dated 17 April 2024

On 16 July 2024 in accordance with Section 108 subsection 1 of the Hamburg higher education act (Hamburgisches Hochschulgesetz, HmbHG) dated 18 July 2001 (HmbGVBl. p. 171) as amended on 11 July 2023 (HmbGVBl. p. 250, 254), the Executive University Board of Universität Hamburg ratified the Subject-Specific Provisions for the Master of Science (MSc) in Business Mathematics adopted by the Faculty Council from the Faculty of Mathematics, Informatics and Natural Sciences on 17 April 2024 in accordance with Section 91 subsection 2 number 1 HmbHG.

Preamble

These Subject-Specific Provisions supplement the Faculty of Mathematics, Informatics and Natural Sciences' examination regulations dated 20 October 2021, as amended, (PO MSc) governing master of science (MSc) degree programs and provide a description of the modules for the subject intelligent adaptive systems.

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 Geophysics is a consecutive, research-based degree program that is taught in English.
- (2) The Master of Science in Geophysics follows the general program goals set out in Section 1 subsection 1 PO MSc. In addition to these general program goals, the study of geophysics at the master's level is designed to provide students with sound knowledge of terrestrial physics, prepare them specifically for geophysics research, and give them the ability to
 - independently apply and expand their scientific knowledge, methods, and skills
 - independently pursue continuing education
 - to act responsibly within their field in accordance with the rules of good academic practice.
- (3) The degree program prepares students for a career in academia or industry with a strong research focus. In addition to further expanding existing knowledge in lectures, tutorials, and seminars in the first two semesters, research-based learning is taught from the third semester onwards, in which students are prepared for research work, ideally embedded in a research group. In the six-month master's thesis, students will also resolve a complex problem from the field of geophysics.
- (4) Students may study components from the subject of geophysics as a supplementary subject.

Section 1 subsection 4:

This degree program is administered by the Faculty of Mathematics, Informatics and Natural Sciences at the University of Hamburg.

Section 3

Subject advising

Section 3 subsection 4:

Students must meet with a subject advisor if it is expected that they will exceed the standard period of study. This is the case, for example, if fewer than 60 ECTS credits are earned in the first year of study.

Section 4

Program and examination organization, modules, and ECTS credits

Section 4 subsections 2 and 3:

- (1) The master's degree program is organized into two stages of one year each: the advanced phase and the research phase.
 - The one-year specialist learning phase provides the advanced knowledge required for independent work in the field of geophysics. It consists of advanced modules (required modules and required elective modules) oriented toward the main research areas of the Institute of Geophysics in the Department of Earth System Sciences or that can be selected from the range of geophysics offered by related departments to provide overarching specialist skills. The distribution of the number of ECTS credits across the individual modules varies depending on the selected courses. A description of the selectable courses can be found in the current version of the module handbook.

Modules totaling 60 ECTS credits must be successfully completed. The following requirements apply:

- In the Advanced Studies and Specialization in Geophysics module, at least 30 ECTS credits must be earned by successfully passing graded (i.e., not pass or fail) examinations.
- Courses amounting to a maximum of 12 ECTS credits can be taken from modules offered by the Department of Earth System Sciences for the geophysics specialization in the Bachelor of Science in Geophysics and Oceanography degree program, where not already credited for the bachelor's degree. These courses are recorded as pass or fail in the Advanced Studies and Specialization in Geophysics module grading system.
- In the Seminar module, at least 6 ECTS credits must be completed for seminars on geophysics topics.
- In the module Interdisciplinary Studies, courses amounting to a maximum of 15 ECTS credits are taken from the courses offered by the Departments of Earth System Sciences (including ICSS), Mathematics, Physics, and Computer Science. Of these, a maximum of 6 ECTS credits can be acquired from the courses offered in bachelor's degree programs, provided the qualification objectives of the relevant modules correspond to the overall qualification objective of the Master of Science in Geophysics degree program. The suitability of the relevant modules for achieving the overall qualification goal is decided by a subject advisor from the field of geophysics in consultation with the student concerned. In case of doubt, the chair of the examinations board decides the content. The examinations board may approve courses from other subject areas on justified request. The courses should have a logical connection to each other. A subject advisor from the field of geophysics decides whether the connection is sufficient in consultation with the student concerned. In case of doubt, the chair of the examinations board decides the content.
- For the elective area Elective Studies, a total of 6 ECTS credits may be selected, usually over two semesters, from the courses offered at the University of Hamburg. These 6 ECTS credits can be acquired from the courses offered in bachelor's degree programs, provided the qualification objectives of the modules in question correspond to the overall qualification objective of the Master of Science in Geophysics degree program. The suitability of the relevant modules for achieving the overall qualification goal is decided by a subject advisor from the field of geophysics in consultation with the student concerned. In case of doubt, the chair of the examinations board decides the content.

- The one-year research phase is comprised of three modules and must be viewed as one inseparable component. The introductory and preparatory project modules each comprise 15 ECTS credits and are part of the third subject semester. These provide students with knowledge of current research and special methods from the master's thesis subject area. The master's thesis, worth 30 ECTS credits, is written over a period of six months during the fourth subject semester. The thesis should demonstrate that the student is able to work under guidance on a selected problem from the field of geophysics in accordance with scientific methods and show that they can logically and comprehensibly present and interpret the problem, means of solution, and solution itself.
- (2) Module descriptions are provided in Annex A to the Subject-Specific Provisions for the Master of Science in Geophysics—Table of Modules and the module handbook, which expands upon these subject-specific provisions. The module descriptions are listed in a 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.

Subject semester	Study phase	Modules	Module type	ECTS credits
1 und 2	Specialist advanced phase, 60 ECTS credits in total	Advanced Studies and Specialisation in Geophysics	Required	30–54
		Interdisciplinary Studies	Required elective	0–15
		Seminar	Required	6–30
		Elective Studies	Elective	0–6
3 und 4	Research phase, total of 60 ECTS credits	Orientation Project	Required	15
		Preparatory Project	Required	15
		Master's Thesis	Required	30

- (3) Students may voluntarily complete additional modules in excess of 120 ECTS credits. They will, however, not be used to calculate the overall final grade.
- (4) Students pursuing a supplementary subject may enroll in individual modules in order to acquire knowledge from subareas of geophysics. The examination regulations applicable to the student's main subject will provide more information about the scope of the supplementary subject. The examinations board establishes which courses satisfy the substantive requirements prescribed within the framework of the main subject after the student has consulted with the subject advisor for geophysics.

Section 13

Completed coursework and module examinations

Section 13 subsection 3:

There should be no more than eight component module examinations per semester.

Section 13 subsection 4:

The specific duration of a written examination will be announced at the beginning of the course.

Term papers must be completed in a minimum of two and a maximum of six weeks, at a length of at least one and a maximum of ten pages of text. The exact type and scope of examination(s) will be announced at the start of the course.

As a rule, the field report must be completed during the course semester in which it was assigned. Between 4 and 14 written reports should be given per semester. Individual written reports should be between 2 and 15 pages in length. The exact type and scope of examination(s) will be announced at the start of the course.

Presentations must be completed in a minimum of two and a maximum of four weeks. The written report must be at least one and no more than six pages long. The exact type and scope of examination(s) will be announced at the start of the course.

The conclusion of the project must occur within a minimum of two and a maximum of eight weeks, at a length of at least one and a maximum of ten pages of text. The exact type and scope of examination(s) will be announced at the start of the course.

Section 13 subsection 5:

Electronic media and electronic documentation may be used for examinations in appropriate circumstances.

Section 13 subsection 6:

Examinations are held in either German or English. As a rule, an examination is 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 4:

The master's thesis may be written in either English or German. This decision must be mutually agreed between the student and the supervisor.

Section 14 subsection 5:

The workload for the master's thesis amounts to 30 ECTS credits. The master's thesis must be completed within six months.

**Section 15
Evaluation of examinations**

Section 15 subsection 3 sentence 1:

If a module examination is comprised of multiple testing components, the grade for the module is calculated on the basis of the average grades for respective performance weighted according to the ECTS credits assigned to each part.

Section 15 subsection 3 sentence 10:

The overall final grade for the master's degree program is calculated by averaging the grades from all modules weighted according to their ECTS credits, whereby the master's thesis has twice the weight.

Section 15 subsection 3 sentence 11:

Examination grades for the Orientation Project, Preparatory Project, and Seminar modules are not differentiated. Their examination results, as well as those of the modules Interdisciplinary Studies and Elective Studies are not included in the overall grade. The best-graded examinations for a total of 30 ECTS credits from the Advanced Studies and Specialization in Geophysics module are included in the overall grade.

Section 15 subsection 4:

The overall final grade “pass with distinction” is awarded if a grade of 1.0 is earned by both assessments of the master’s thesis, the average overall grade is less than or equal to 1.30, and none of the module examinations were passed with grades lower than 2.3.

**Section 23
Effective date**

These Subject-Specific Provisions become effective on the day following official publication by the University of Hamburg. They first apply to students commencing their studies in Winter Semester 2024/2025. Students who commenced their studies earlier may apply to change to this version of the subject-specific regulations.

Hamburg, 13 August 2024
University of Hamburg

II. Annex to the Subject-Specific Provisions for the Master of Science in Geophysics Module Table

		Module information					Courses				Examinations			
Specialist advanced phase	Recommended semester	Frequency	Duration (one or two)	Module type: Required (Req), required elective (RE), or elective (E)	Module number/code	Module prerequisites	Module	Course title	Course type	Credit hours per week	Examination prerequisites	Type of examination	Graded	ECTS credits
		From first semester	Winter semester / summer semester	2	Req.	GeoPhys-M-AS	--	Advanced Studies and Specialisation in Geophysics				Preliminary examination requirements will be announced at the beginning of the respective course.	Written examination, practical examination, or term paper; usually a maximum of seven component examinations per semester	Yes
							Lectures	L						1 ECTS credit per credit hour per week L
							Practical course	PC						2 ECTS credits per credit hour per week PC
							All other course types permitted by Section 5 Examination regulations							
	Learning objectives: Students have in-depth knowledge of the state of scientific research as well as an in-depth understanding of selected problems, methods, and results in subject areas from the research fields of geophysics. They are able to utilize advanced research methods employed in the field of research. They develop the ability to carry out independent academic work in the field and have insight into and practice dealing with specialist literature.													
	From first semester	Winter semester / summer semester	2	Req.	GeoPhys-M-IS	--	Interdisciplinary Studies				As specified by the department			At least 0 ECTS, at most 15, of which at most 6 from the courses offered in bachelor's degree programs
							Courses offered by the Departments of Earth System Sciences (including ICSS), Mathematics, Physics, and Informatics				As a rule, a maximum of four partial examinations per semester			
	Learning objectives: The students have broadened the knowledge acquired in geophysics by acquiring knowledge from complementary subjects.													

Fachliche Vertiefungsphase	From first semester	Winter semester / summer semester	2	Req.	GeoPhys-M-SEM	--	Seminar		Successful (criteria will be announced at the beginning of the respective course) and regular participation	Presentation and, if applicable, a written report; usually a maximum of two partial examinations per semester	No	Min. 6, max. 30
							Seminar	S				
Learning objectives: Students can independently familiarize themselves with an advanced geophysics topic. They can present their results in a lecture and lead professional discussions.												
Fachliche Vertiefungsphase	From first semester	Winter semester / summer semester	2	W	GeoPhys-M-ES	--	Elective Studies		As specified by the department			Min. 0, max. 6
							Courses offered by the University of Hamburg		As a rule, a maximum of two component examinations per semester			
Learning objectives: Students have acquired basic knowledge in a subject area of their choice.												
Forschungsphase	3	Winter semester / summer semester	1	Req.	GeoPhys-M-OP	--	Orientation Project		No			15
							Orientation Project	Course type pursuant to Section 5 Examination regulations	Regular participation in the research group seminar and the geophysics seminar; further preliminary examination requirements to be announced at the beginning of the respective course	Project completion or presentation		
Learning objectives: Students have familiarized themselves with the latest scientific literature through in-depth study of a modern research topic that will form the basis of the master's thesis. Students are able to independently obtain necessary information, establish background information, and grasp a specific topic.												

Forschungsphase	3	Winter semester / summer semester	1	Req.	GeoPhys-M-PP	GeoPhys-M-OP	Preparatory Project		No	15	
							Preparatory Project	Course type pursuant to Section 5 Examination regulations	Regular participation in the research group seminar and the geophysics seminar; further preliminary examination requirements to be announced at the beginning of the respective course	Project completion or presentation	
	<p>Learning objectives: Students develop specialized methods and knowledge of an area to such an extent that they are able to successfully apply these to solving problems in the area from which the topic of the master's thesis should be derived. They are able to plan and structure the intended research project.</p>										
	4	Winter semester / summer semester	6 months.	Req.	GeoPhys-M-MT	Mandatory: successful participation in GeoPhys-M-AS	Master's Thesis		Master's thesis	Yes	30
						Written thesis		Regular participation in the research group seminar and the geophysics seminar	80 %	20 %	
<p>Learning objectives: Students are able to familiarize themselves with a problem of current geophysical research within the given time limit. They can increasingly apply suitable scientific methods independently and present the results in a scientifically appropriate form. Part of the master's thesis examination is a presentation as part of an academic seminar on the content of the written thesis. The presentation comprises one-fifth of the grade for the master's thesis and should be given soon after the written thesis has been submitted.</p>											