OFFICIAL TRANSLATION OF

Neufassung der Fachspezifischen Bestimmungen für den Studiengang „Marine Ecosystem and Fisheries Sciences (M. Sc.)"

Vom 5. Dezember 2018

(Amtliche Bekanntmachung Nr. 39 vom 9. August 2019)

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 Marine Ecosystem and Fisheries Sciences (MSc)

dated 5 December 2018

On 31 May 2019 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 for the Master of Science in Marine Ecosystem and Fisheries Sciences (MSc) that were adopted by the faculty council from the Faculty of Mathematics, Informatics and Natural Sciences on 5 December 2018 pursuant to Section 91 subsection 2 no. 1 HmbHG dated 18 July 2001 (HmbGVBl. p. 171), last amended through Article 1 of the Act on 29 May 2018 (HmbGVBl. p. 200).

Preamble

These subject-specific provisions supplement the provisions of the Faculty of Mathematics, Informatics and Natural Sciences' Examination Regulations, as amended, governing Master of Science degree programs and provide a description of the modules for the Master of Science in Marine Ecosystem and Fisheries Sciences (MSc).

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 Marine Ecosystem and Fisheries Sciences (MSc) is a research-oriented degree program. Graduates have the practical and theoretical methods in the research areas of biological oceanography and fisheries science and are able to apply them in laboratory studies, field studies, and theoretical studies. Graduates have the ability to develop scientific hypotheses upon analyzing problems and are able to select approaches in order to verify them. Graduates are familiar with the current discourse on anthropogenic effects on marine ecosystems and can use their expertise to contribute to societal debates on the management and conservation of marine ecosystems and living marine resources. Consequently, graduates are able to pursue a career in science and/or contribute to the assessment and management of the state of marine ecosystems.

(2) The degree program builds upon a bachelor's degree or an equivalent qualification earned in a discipline in the environmental sciences or biosciences.

Section 4
Program and examination organization, modules, and ECTS credits

Section 4 subsection 1:

The program consists of a required area (Req.) comprised of 84 ECTS credits, a required elective area, which is divided into required elective area 1 (RE1) and required elective area 2 (RE2), each totaling 15 ECTS credits, and an elective area (E) amounting to 6 ECTS credits. An overview of modules has been provided in a table attached as an appendix to the subject-specific provisions. The recommended course of study is as follows:

Semester	Module	Required	RE1	RE2	E	ECTS Credits
1	Introduction to Biological Oceanography and Fisheries Science	X				6
	Biodiversity of Marine Life	X				18
	Data Handling and Visualization	X				6
2	Advanced Biological Oceanography and Fisheries Science	X				6
	Marine Ecosystem Dynamics and Management		X			15
	Fish Biology and Population Dynamics		X			15
	Data Analysis and Modelling 1	X				6

Semester	Module					ECTS
	Elective area				X	3
3	Environmental Policy and Management	X				6
	Plankton Ecology and Evolution			X		15
	Dynamics of Marine Food Webs: Zooplankton-Ichthyoplankton Coupling			X		15
	Advanced Marine Ecosystem Modelling			X		15
	Data Analysis and Modelling 2	X				6
	Elective area				X	3
4	Master's thesis	X				30

One module must be successfully completed from both required elective areas.

Section 4 subsection 3:
The final module is comprised of the master's thesis (27 ECTS credits) and an oral examination (3 ECTS credits). The oral examination should be taken no later than six weeks after submission of the master's thesis.

Section 5
Course types
Courses are held in English. Attendance is compulsory for seminars, practical courses, and internships.

Section 13
Completed coursework and module examinations
Section 13 subsection 4:
The type of examination must be announced at the beginning of the course if an examination may be taken as either a written examination or an oral examination.

Section 13 subsection 6:
The examinations are held in English.

Section 14
Master's thesis
Section 14 subsection 2:
Students may submit an application to commence work on the master's thesis once the entire required elective area and the module Data Analysis and Modelling 2 have been successfully completed. The master's thesis must be completed in one of the working groups in which a required elective module has been successfully completed.

Section 14 subsection 4:
The master's thesis must be written in English.

Section 14 subsection 5:
The time period to complete the work is six months.

Section 15
Evaluation of examinations
Section 15 subsection 3 sentence 9:
Elective area modules may be graded either by using the grading scale or by pass/fail. Completed elective area modules shall not be used for the calculation of the overall final grade. Fifty percent of the grade from the final module and 50% of the other module grades weighted according to the ECTS credits assigned to them is used to calculate the overall final grade.

Section 23
Effective date
These subject-specific provisions become effective on the day following official publication by Universität Hamburg. They shall first apply to students commencing their studies in the Winter Semester 2019/20.

Hamburg, 9 August 2019
Universität Hamburg

Table Overview of Modules: Appendix to the Subject-Specific Provisions for the Master of Science in Marine Ecosystem and Fisheries Sciences

Offered in	Recommended Semester	Duration (Semester)	Module Prerequisites	Module Type: Required (Req.), Required Elective (RE), or Elective (E)	Module Number/Code	Courses		Course Type	Cr. Hrs. per Week	Examinations		Graded	ECTS credits
						Module	Course Title			Prerequisites for Admission to Examination	Type of Examination		
WiSe	1	1	None	Req.	i-MARSYS 1	**Introduction to Biological Oceanography and Fisheries Science**				Presentation	Written or oral examination (100%)*	Yes	6
							Introduction to Biological Oceanography and Fisheries Science	L	3				
							Current literature in biological oceanography and fisheries science	S	2				
Intended learning results: Students know and understand basic questions, methods and the current state of knowledge in the fields of Biological Oceanography and Fisheries Science.													
Winter semester	1	1	None	Req.	i-MARSYS 2	**Biodiversity of Marine Life**				Presentation	Field experiment (graded/ungraded), written examination (100%)	Yes	18
							Introduction to Marine Biodiversity	L	2				
							Current Topics in Marine Biodiversity Research	S	2				
							Taxonomy of Marine Species	Req.	6				
Intended learning results: Students are familiar with theoretical concepts of biodiversity research and are capable of analysing biodiversity with respect to the taxonomy of important marine organisms with a focus in the North and Baltic Seas.													
Winter semester	1	1	None	Req.	i-MARSYS 3	**Data Handling and Visualization**					Practical exercise (100%)	Yes	6
							Introduction to Data Handling and Visualization	L	2				
							Practical Data Handling and Visualization	PC	2				
Intended learning results: Students are able to apply common data handling and visualization tools.													
Summer semester	2	1	Recommended: i- MARSYS 1	Req.	i-MARSYS 4	**Advanced Biological Oceanography and Fisheries Science**				Presentation	Written or oral examination (100%)*	Yes	6
							Advanced Biological Oceanography and Fisheries Science	L	2				
							Current Topics in Biological Oceanography and Fisheries Science	S	2				
Intended learning results: Students have a deeper insight into the current research topics in Biological Oceanography and Fisheries Science.													
Summer semester	2	1	i-MARSYS 3	Req.	i-MARSYS 5	**Data Analysis and Modelling 1**					Practical exercise (100%)	Yes	6
							Introduction to Data Analysis and Modelling 1	L	2				
							Applying Statistical Methodology	PC	2				
Intended learning results: Students are familiar with basic and advanced statistical methodology for analyzing monitoring, field and laboratory data. Students are able to perform data analysis and modelling in the language and environment for statistical computing and graphics R.													

Semester			Prereq.		Code	Module / Course	Type	CP		Assessment	Repeat	CP
Summer semester	2	1	i-MARSYS 1 i-MARSYS 2 i-MARSYS 3	RE	i-MARSYS 6a	**Marine Ecosystem Dynamics and Management**				Field experiment (100%)	Yes	15
						Marine Ecosystem Dynamics and Management	Req.	12				

Intended learning results: Students are familiar with current methodology in assessing marine ecosystem dynamics for ecosystem-based management based on field sampling and monitoring data.

Semester			Prereq.		Code	Module / Course	Type	CP		Assessment	Repeat	CP
Summer semester	2	1	i-MARSYS 1 i-MARSYS 2 i-MARSYS 3	RE	i-MARSYS 6b	**Fish Biology and Population Dynamics**				Field experiment (100%)	Yes	15
						Fish Biology and Population Dynamics	Req.	12	r,			

Intended learning results: Students are familiar with current methodology in assessing marine resource species ecology and population dynamics based on field sampling and related laboratory analysis.

Semester			Prereq.		Code	Module / Course	Type	CP		Assessment	Repeat	CP
Winter semester	3	1	i-MARSYS 1 i-MARSYS 2 i-MARSYS 3	RE	i-MARSYS 7a	**Plankton Ecology and Evolution**				Field experiment (100%)	Yes	15
						Plankton Ecology and Evolution	Req.	12				

Intended learning results: Students are familiar with current scientific laboratory methodology concerning sampling, maintenance and experimental procedures of microbial primary producers at the foundation of aquatic ecosystems; analysis of current underlying theory and literature for shaping the way experiments are conducted on microbial primary producers.

Semester			Prereq.		Code	Module / Course	Type	CP		Assessment	Repeat	CP
Winter semester	3	1	i-MARSYS 1 i-MARSYS 2 i-MARSYS 3	RE	i-MARSYS 7b	**Dynamics of Marine Food Webs: Zooplankton-Ichthyoplankton Coupling**				Field experiment (100%)	Yes	15
						Dynamics of Marine Food Webs: Zooplankton-Ichthyoplankton Coupling	Req.	12				

Intended learning results: Students are familiar with current scientific laboratory methodology concerning sampling, maintenance, and experimental procedures of marine zooplankton and ichthyoplankton including assessments of vital rates (growth, feeding and survival) and anthropogenic drivers of populations such as climate change.

Semester			Prereq.		Code	Module / Course	Type	CP		Assessment	Repeat	CP
Winter semester	3	1	i-MARSYS 1 i-MARSYS 2 i-MARSYS 3 i-MARSYS 5	RE	i-MARSYS 7c	**Advanced Marine Ecosystem Modelling**				Field experiment (100%)	Yes	15
						Advanced Marine Ecosystem Modelling	Req.	12				

Intended learning results: Students are familiar with state-of-the-art marine ecosystem and individual based modeling approaches. They are able to develop advanced models, run these models and interpret the results, using programming languages and visualization tools of their choice.

Semester			Prereq.		Code	Module / Course	Type	CP		Assessment	Repeat	CP
Winter semester	3	1	None	Req.	i-MARSYS 8	**Environmental Policy and Management**			Presentation	Oral examination (100%)	Yes	6
						Introduction to Environmental Policy and Management	L	2				
						Actual Topics in Environmental Policy and Management	S	2				

Intended learning results: Students are familiar with national and European Union environmental and fisheries management policies. Students know concepts of ecosystem-based management.

Semester			Prereq.		Code	Module / Course	Type	CP		Assessment	Repeat	CP
Winter semester	3	1	i-MARSYS 5	Req.	i-MARSYS 9	**Data Analysis and Modelling 2**				Practical exercise (100%)	Yes	6
						Introduction to Data Analysis and Modelling 2	L	2				
						Application of Modelling Techniques	PC	2				

Intended learning results: Students are familiar with basic and advanced methodology for modelling marine ecosystem, food web and fish stock dynamics. Students are able to perform data analysis and modelling in the language and environment for statistical computing and graphics R.

Semester			Prereq.		Code	Module / Course	Type	CP		Assessment	Repeat	CP
Summer semester / Winter semester	2/3	1	None	E	None	**Elective module**				various	yes/no	6
						various						

Intended learning results: Contingent on the respective module description

Winter semester / Summer semester	4	1	The required elective area and i-MARSYS 9 must be successfully completed.	Req.	i-MARSYS 10	**Master's Thesis**	Master's thesis (100%) and oral examination (graded/ungraded)	Yes	30

Intended learning results: Students are able to think and work in the scientific fields of the MSc Marine Ecosystem and Fisheries Science. They have gained experience in presentation and evaluation of their own scientific work in the context of the current scientific state of the art and they are able to solve scientific problems.

* The type of examination must be announced at the beginning of the course if an examination may be taken as either a written examination or an oral examination.